

# CONCEPT, FEASIBILITY & MOBILITY STUDY REPORT FOR THE NORTHEAST CONNECTOR EXPRESSWAY

Osceola County, Florida

From Florida's Turnpike to South of Osceola/Orange County Line

Prepared for:

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**CENTRAL  
FLORIDA  
EXPRESSWAY  
AUTHORITY**

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**Contract Number: 001249**

**CFX Project Number: 599-222**

**Date: June 2018**



**PROFESSIONAL ENGINEER CERTIFICATE**

I hereby certify that I am a registered professional engineer in the State of Florida practicing with **Inwood Consulting Engineers, Inc.**, and that I have supervised the preparation of and approved the analysis, findings, opinions, conclusions, and technical advice reported in:

REPORT: Concept, Feasibility & Mobility Study Report  
PROJECT: Northeast Connector Expressway  
LOCATION: From Florida's Turnpike to South of the  
Osceola/Orange County Line  
CLIENT: Central Florida Expressway Authority

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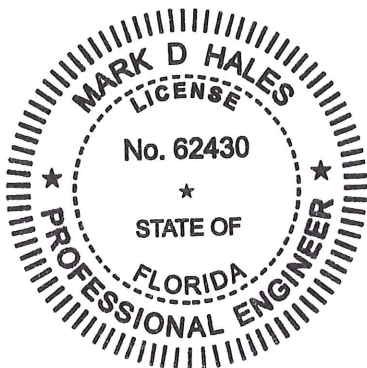
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REFERENCE COPY

This report includes a summary of data collection efforts, corridor analysis, and conceptual design analysis for Reams Road from Florida's Turnpike to South of the Osceola/Orange County Line.

I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through design standards and criteria set forth by the federal, state, and local regulatory agencies as well as professional judgment and experience.



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*06/06/2018*

## Table of Contents

Executive Summary .....	1
I. Project Summary .....	1
II. Feasibility and Viability of the Proposed Project.....	4
III. Recommendations for The Proposed Project.....	16
1. Introduction .....	17
1.1 Project Description.....	17
1.2 Purpose of Report .....	17
1.3 Project Location .....	17
1.4 Previous Studies Related to the Project.....	20
1.5 Other Projects Within or Near the Study Area.....	26
1.5.1 Additional CFX Feasibility Studies .....	26
1.5.2 Other Area Projects .....	26
1.5.3 Additional Capacity Projects DOT, MPO, Local Projects .....	27
2. Project Need and Purpose.....	29
2.1 Need for Improvement .....	29
2.1.1 System Linkage .....	29
2.1.2 Regional Connectivity and Mobility .....	29
2.1.3 Social and Economic Needs .....	31
2.1.4 Capacity Constraints .....	31
2.1.5 Consistency with Transportation Plans.....	31
2.1.6 Multimodal Opportunities .....	31
2.1.7 Safety and Evacuation Support.....	31
2.2 Purposes of the Proposed Project.....	31
3. Existing Conditions .....	33
3.1 Existing Road Network .....	33
3.1.1 Functional Classification .....	33
3.1.2 Access Classification .....	33
3.2 Existing Roadway Characteristics.....	36
3.2.1 Typical Sections.....	36
3.2.2 Design and Posted Speeds.....	36

3.2.3	Right-of-Way .....	37
3.2.4	Pavement Conditions.....	38
3.2.5	Horizontal Alignment.....	39
3.2.6	Vertical Alignment .....	39
3.2.7	Intersections and Signalizations .....	39
3.2.8	Lighting .....	39
3.3	Geotechnical Data .....	39
3.4	Natural Environment.....	41
3.4.1	Water Resources.....	41
3.4.2	Wetlands and Hydric Soils .....	46
3.4.3	Soil Classifications .....	48
3.4.4	Prime and Unique Farmlands .....	50
3.4.5	Priority Habitat .....	52
3.4.6	Threatened or Endangered Species.....	52
3.4.7	Essential Fish Habitat.....	54
3.4.8	Conservation Areas.....	54
3.4.9	Mitigation Banks .....	56
3.4.10	Prescribed Burn Areas .....	56
3.5	Human Environment.....	57
3.5.1	Existing Land Use .....	57
3.5.2	Future Land Use .....	57
3.5.3	Community and Neighborhood Features .....	57
3.5.4	Cultural Resources .....	62
3.5.5	Demographic Characteristics .....	63
3.5.6	Aesthetic Features .....	66
3.5.7	Mass Transit Facilities .....	66
3.5.8	Freight and Intermodal Centers.....	66
3.5.9	Pedestrian and Bicycle Facilities .....	66
3.5.10	Transportation Plans.....	69
3.6	Contamination .....	70
3.7	Utilities .....	74

3.7.1	Electrical .....	74
3.7.2	Natural Gas .....	76
3.7.3	Other Utilities .....	76
3.7.4	Utility Mitigation and Cost.....	77
3.8	Railroads .....	78
4.	Traffic Considerations .....	79
4.1	Historical and Current Traffic.....	79
4.2	Roadway Operational Conditions .....	81
4.3	Safety/Crash Analysis.....	82
4.4	Travel Demand Modeling.....	84
4.4.1	CFX 3.0 – Base Year Model (2015) .....	84
4.4.2	CFX 3.0 Future Year Models.....	96
4.4.3	2045 Project Alternatives AADT Volumes.....	106
5.	Design Criteria .....	107
5.1	Basic Design Criteria.....	107
5.2	Drainage Design Criteria .....	112
5.2.1	Pond Design .....	113
5.2.2	Floodplain Impacts.....	114
5.2.3	Cross Drains .....	114
5.3	Canal Criteria.....	114
6.	Mobility Alternatives Evaluation .....	116
6.1	No-Build Alternative.....	116
6.1.1	Projected Design Year Traffic.....	116
6.2	Transportation Systems Management and Operations .....	117
6.3	Transit, Intermodal, Multi-Modal Alternatives .....	118
6.3.1	CFX Multi-Modal Policy.....	118
6.3.2	Potential Multi-Modal Improvements .....	118
6.3.3	Recommended Multi-Modal Considerations.....	120
6.4	Tolled Limited-Access Alternative.....	121
6.5	Corridor Development Process .....	121
6.5.1	Re-evaluation of Previous Study Corridors .....	121

6.5.2	Development of New Corridors .....	121
6.6	Corridor Narrative .....	125
6.6.1	Corridor A – Red .....	130
6.6.2	Corridor B – Red/Yellow .....	140
6.6.3	Corridor C – Blue/Cyan/Yellow .....	149
6.6.4	Corridor D – Blue/Brown/Yellow .....	158
6.6.5	Corridor E – Blue/Yellow .....	165
6.7	Summary Matrix-Mobility Alternatives Evaluation .....	172
7.	Anticipated Effects .....	177
7.1	Natural Environment.....	177
7.1.1	Water Resources.....	177
7.1.2	Wetlands and Hydric Soils .....	178
7.1.3	Farmlands .....	179
7.1.4	Threatened and Endangered Species .....	179
7.1.5	Priority Habitat .....	185
7.1.6	Essential Fish Habitat.....	185
7.1.7	Conservation Areas.....	185
7.1.8	Mitigation Banks .....	186
7.1.9	Prescribed Burn Areas .....	186
7.1.10	Anticipated Permits .....	186
7.2	Human Environment.....	188
7.2.1	Community and Neighborhood Facilities .....	188
7.2.2	Cultural Resources .....	189
7.2.3	Emergency Services .....	195
7.3	Noise .....	195
7.4	Air Quality .....	195
7.5	Contamination .....	195
7.6	Utilities .....	197
8.	Stakeholder Involvement .....	200
8.1	Introduction .....	200
8.2	Stakeholder Coordination and Meetings .....	201

8.2.1	Environmental Advisory Group.....	201
8.2.2	Project Advisory Groups .....	202
8.2.3	Local Government Officials.....	203
8.2.4	Other Stakeholder Meetings .....	204
8.2.5	Public Involvement and Meetings .....	206
8.2.6	Summary of Public Comments.....	211
8.3	Project Website.....	213
8.4	Media Coverage .....	213
9.	Feasibility & Viability of the Proposed Project .....	218
9.1	Benefits of the Proposed Project .....	218
9.2	Controversy of the Proposed Project.....	219
9.3	Support for the Proposed Project .....	220
9.4	Projected Project Costs .....	221
9.5	Projected Traffic and Revenue .....	221
9.5.1	2040 Revenue Analysis .....	221
9.5.2	Present Value.....	224
9.6	Alternative Comparison Matrix.....	224
9.7	CFX Financial Viability Criteria.....	227
9.8	Findings of the Concept, Feasibility, & Mobility Study .....	229

## List of Figures

ES 0-1	Project Location Map.....	2
ES 0-2	Corridors Recommended for Further Consideration.....	8
Figure 1-1	CFX Master Plan Projects.....	18
Figure 1-2	Project Location Map .....	19
Figure 1-3	WSA Report Recommended Corridors .....	21
Figure 1-4	KHA Report East and West Alignments .....	22
Figure 1-5	VHB Report Recommended Alignments.....	24
Figure 1-6	OCX Approved Modification to Master Plan .....	25
Figure 2-1	East Central Florida Corridor Task Force Proposed Corridors .....	30
Figure 2-2	Development Map.....	32
Figure 3-1	Drainage/Floodplain Evaluation Map.....	44
Figure 3-2	Wetland Communities within the Study Area .....	47
Figure 3-3	Prime and Unique Farmlands .....	51

Figure 3-4 Listed Species Locations .....	53
Figure 3-5 Conservation Area .....	55
Figure 3-6 Existing Land Use Map.....	58
Figure 3-7 Future Land Use Map (2025) .....	59
Figure 3-8 Planned Developments Map .....	60
Figure 3-9 2015 United States Census Bureau Tracts .....	64
Figure 3-10 Existing and Planned Trails Map.....	68
Figure 3-11 Existing Contamination Conditions Location Map.....	72
Figure 4-1 CFX 3.0 Model Area .....	85
Figure 4-2 Study Sub-Area .....	87
Figure 4-3 CFX 3.0 Sub Area Model .....	93
Figure 4-4 CFX Facilities Scatter Plot .....	95
Figure 4-5 Total Population for Orange County Sub Area: 2015-2045 .....	99
Figure 4-6 Total Population for Osceola County Sub Area: 2015-2045 .....	100
Figure 4-7 2045 Network Improvements .....	102
Figure 4-8 Screen Lines for OCX Projects.....	105
Figure 6-1 Northeast Connector Expressway Aerial Base Map .....	123
Figure 6-2 LSM and GIS Layers Used.....	124
Figure 6-3 Alignment Alternatives Map.....	126
Figure 6-4 Micro-Area Study Corridor Alignments .....	127
Figure 6-5 Corridors Recommended for Further Evaluation .....	129
Figure 6-6 Corridor A – Red Horizontal Geometry Map .....	131
Figure 6-7 Corridor A – Red Proposed Typical Section .....	132
Figure 6-8 Interchange and Bridge Structures Location Map .....	133
Figure 6-9 Corridor A- Red Hickory Tree Road Relocation.....	135
Figure 6-10 Corridor B – Red/Yellow Horizontal Geometry Map .....	141
Figure 6-11 Corridor B- Red/ Yellow Hickory Tree Road Realignment .....	144
Figure 6-12 Corridor C – Blue/Cyan/Yellow Horizontal Geometry Map .....	150
Figure 6-13 Hickory Tree Road Connector Road and Interchange .....	153
Figure 6-14 Corridor D – Blue/Brown/Yellow Horizontal Geometry Map .....	159
Figure 6-15 Corridor E – Blue/Yellow Horizontal Geometry Map .....	166
Figure 7-1 Areas of Potential Threatened and Endangered Species Occurrence .....	181
Figure 7-2 Existing Contamination Conditions Location Map.....	196
Figure 7-3 Utilities Map .....	199
Figure 9-1 Northeast Connector Expressway Alternatives Annual Transactions & Toll Revenue .....	223

## List of Tables

Table ES-0-1 Summary of Design Elements .....	10
Table ES-0-2 Summary of Anticipated Effects .....	12
Table ES-0-3 Summary of Projected Costs.....	14

Table ES-0-4 Viability of Corridor Alternatives .....	15
Table 1-1 Identified Roadway and Other Capital Improvement Projects .....	27
Table 3-1 Existing Roadway Functional Classification .....	34
Table 3-2 Existing Roadway Access Management Classification .....	35
Table 3-3 Roadway Laneage .....	36
Table 3-4 Roadway Posted and Design Speed .....	37
Table 3-5 Roadway Right-of-Way Width .....	38
Table 3-6 Intersection Summary .....	40
Table 3-7 Summary of Surface Waters within the Study Area .....	41
Table 3-8 Summary of Impaired Waters .....	42
Table 3-9 Summary of Base Flood Elevations .....	45
Table 3-10 Summary of Wetlands within the Study Area .....	48
Table 3-11 Soil Classifications .....	49
Table 3-12 Summary of Prime and Unique Farmlands .....	50
Table 3-13 Summary of Conservation Lands within the Study Area .....	56
Table 3-14 Summary of Mitigation Banks within the Study Area .....	56
Table 3-15 Community Facilities .....	61
Table 3-16 Previously Recorded Archaeological Sites Near the Project Area .....	63
Table 3-17 Project Area Demographics .....	65
Table 3-18 Project Area Household Income Characteristics (2015) .....	65
Table 3-19 Project Area Employment Status (2015) .....	66
Table 3-20 Potential Contamination Sites .....	71
Table 3-21 Existing Electrical Utilities in the Study Area .....	74
Table 3-22 Existing Natural Gas Utilities in the Study Area .....	76
Table 3-23 Other Existing and Proposed Utilities in the Study Area .....	76
Table 4-1 Historical AADT Growth Rates .....	79
Table 4-2 Existing Roadway Operational Conditions .....	81
Table 4-3 Crash Analysis .....	82
Table 4-4 Zone Disaggregation Summary .....	88
Table 4-5 Population Control Totals .....	89
Table 4-6 2015 Employment Control Totals .....	90
Table 4-7 2015 School Enrollment Control Totals .....	90
Table 4-8 CFX 3.0 Validation: High Capacity Facilities .....	94
Table 4-9 Population Forecasts .....	96
Table 4-10 Population Control Totals for Study Area .....	97
Table 4-11 Employment Control Totals for Study Area .....	97
Table 4-12 Study Area Employment to Population Ratios .....	98
Table 4-13 School Enrollment Control Total Forecasts .....	98
Table 4-14 Screen-Line Counts and Forecasts .....	104
Table 5-1 Basic Design Criteria .....	107
Table 6-1 Projected 2045 No-Build Traffic Conditions .....	116
Table 6-2 Micro-Area Study Matrix .....	128



Table 6-3 Corridor A – Red Interchange Type and Location .....	130
Table 6-4 Corridor A – Red Bridge Structure Location, Type of Crossing, and Type of Bridge Structure .....	134
Table 6-5 Corridor A – Red Pond Sizing Summary .....	137
Table 6-6 Corridor A – Red Offsite Conveyance Summary .....	138
Table 6-7 Corridor A – Red Projected 2045 Design Traffic and Conditions .....	139
Table 6-8 Corridor B – Red/Yellow Interchange Type and Location .....	142
Table 6-9 Corridor B – Red/Yellow Bridge Structure Location, Type of Crossing and Type of Bridge Structure .....	142
Table 6-10 Corridor B – Red/Yellow Pond Sizing Summary .....	145
Table 6-11 Corridor B – Red/Yellow Offsite Conveyance Summary .....	146
Table 6-12 Corridor B – Red/Yellow Projected 2045 Design Traffic and Conditions .....	148
Table 6-13 Corridor C – Blue/Cyan/Yellow Interchange Type and Location .....	151
Table 6-14 Corridor C – Blue/Cyan/Yellow Bridge Structure Location, Type of Crossing and Type of Bridge Structure .....	151
Table 6-15 Corridor C – Blue/Cyan/Yellow Pond Sizing Summary .....	154
Table 6-16 Corridor C – Blue/Cyan/Yellow Offsite Conveyance Summary .....	155
Table 6-17 Corridor C – Blue/Cyan/Yellow Projected 2045 Design Traffic and Conditions .....	156
Table 6-18 Corridor D – Blue/Brown/Yellow Interchange Type and Location .....	160
Table 6-19 Corridor D – Blue/Brown/Yellow Bridge Structure Location, Type of Crossing and Type of Bridge Structure .....	160
Table 6-20 Corridor D – Blue/Brown/Yellow Pond Sizing Summary .....	161
Table 6-21 Corridor D – Blue/Brown/Yellow Offsite Conveyance Summary .....	162
Table 6-22 Corridor D – Blue/Brown/Yellow Projected 2045 Design Traffic and Conditions .....	164
Table 6-23 Corridor E – Blue/Yellow Interchange Type and Location .....	167
Table 6-24 Corridor E – Blue/Yellow Bridge Structure Location, Type of Crossing and Type of Bridge Structure .....	167
Table 6-25 Corridor E – Blue/Yellow Pond Sizing Summary .....	168
Table 6-26 Corridor E – Blue/Yellow Offsite Conveyance Summary .....	169
Table 6-27 Corridor E – Blue/Yellow Projected 2045 Design Traffic and Conditions .....	171
Table 6-28 Alternatives Matrix Evaluation: Part A .....	173
Table 6-29 Alternatives Matrix Evaluation: Part B .....	174
Table 6-30 Alternatives Matrix Evaluation: Part C .....	176
Table 7-1 Surface Water Features Impacts .....	177
Table 7-2 Floodplain Impacts .....	178
Table 7-3 Summary of Wetland Impacts per Corridor .....	179
Table 7-4 Impacted Prime or Unique Farmlands (acres) .....	179
Table 7-5 Suitable Habitat for Representative Species .....	182
Table 7-6 Potential Impacts to Representative Listed Species .....	183
Table 7-7 Potential Impacts to Representative Listed Species Used for Mitigation Costing .....	184
Table 7-8 Costs Per Acre of Impact of Occupied Habitat for Listed Species .....	184
Table 7-9 Mitigation Costs for Impacts to Listed Species .....	185

Table 7-10 Impacts to Residential and Non-Residential Parcels and Planned Developments ...	188
Table 7-11 Corridor A – Red Cultural Resource Potential Impacts .....	191
Table 7-12 Corridor B – Red/Yellow Cultural Resource Potential Impacts .....	192
Table 7-13 Corridor C – Blue/Cyan/Yellow Cultural Resource Potential Impacts.....	193
Table 7-14 Corridor D – Blue/Brown/Yellow Cultural Resource Potential Impacts.....	194
Table 7-15 Corridor E – Blue/Yellow Cultural Resource Potential Impacts .....	194
Table 8-1 Media Coverage .....	214
Table 9-1 Northeast Connector Expressway Summary of Projected Costs .....	221
Table 9-2 Present Value of Revenue Stream for Northeast Connector Expressway Alternatives .....	224
Table 9-3 Northeast Connector Expressway Alternative Comparison Matrix .....	225
Table 9-4 Alternatives Evaluation Design Elements Matrix.....	226
Table 9-5 Northeast Connector Expressway Projected Toll Revenues as a Percentage of Total Cost .....	228

## Appendices

Appendix A Corridor A-Red Concept Plans
Appendix B Corridor B-Red/Yellow Concept Plans
Appendix C Corridor C- Blue/Cyan/Yellow Concept Plans
Appendix D Corridor D-Blue/Brown/Yellow Concept Plans
Appendix E Corridor E-Blue/Yellow Concept Plans
Appendix F Pond Sizing Methodology
Appendix G Public Involvement

# Executive Summary

## I. Project Summary

### Project Description

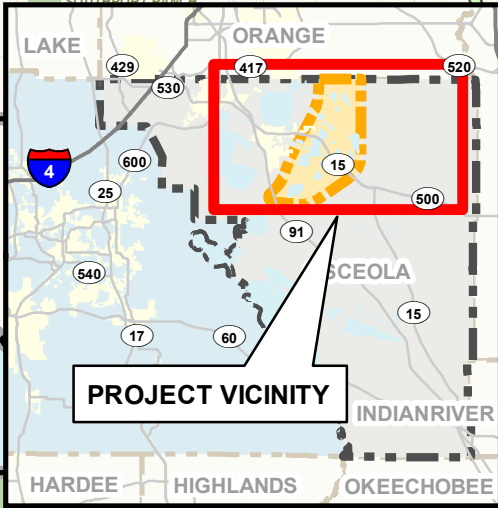
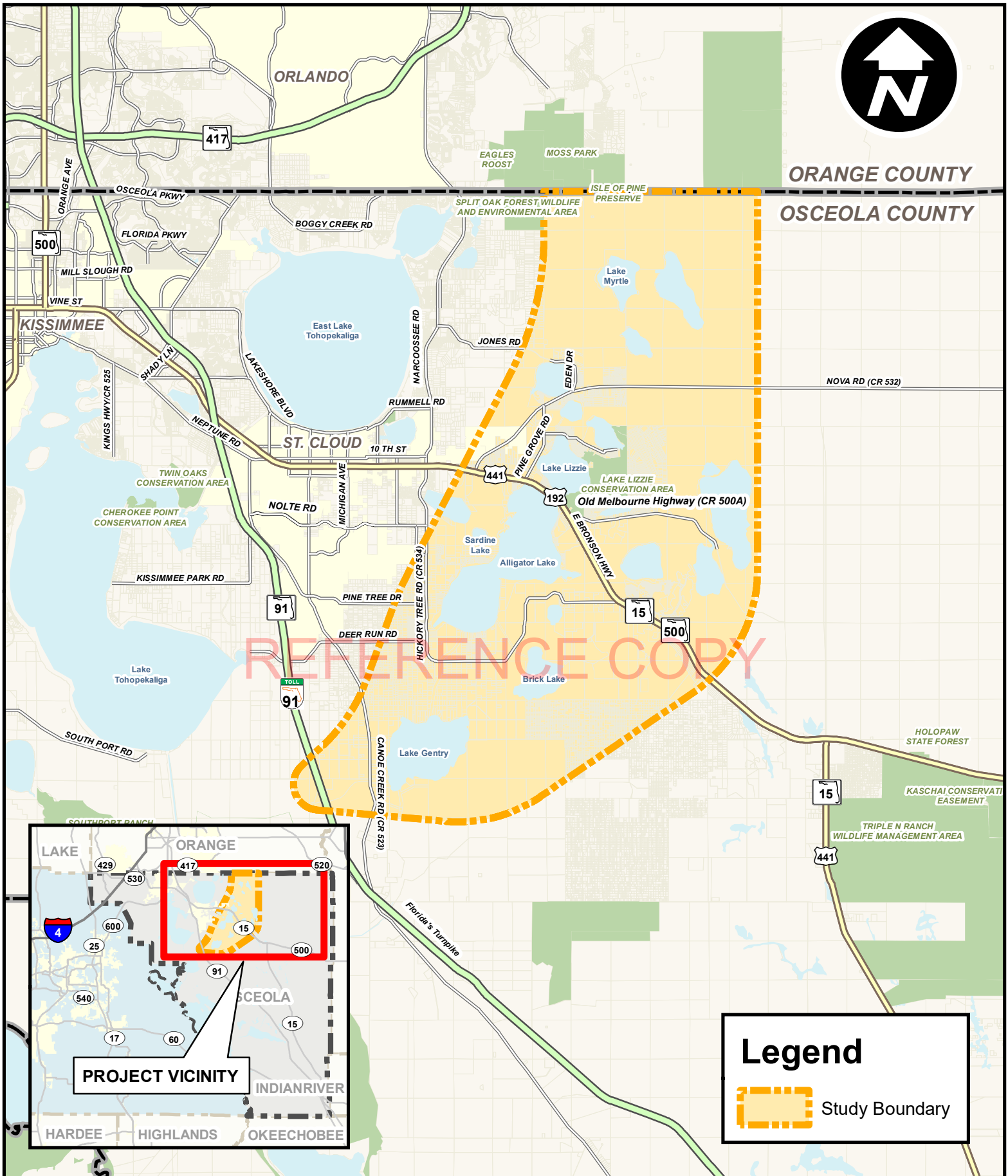
The Concept, Feasibility & Mobility Study for the Northeast Connector Expressway was initiated by the Central Florida Expressway Authority (CFX). The Northeast Connector Expressway is a planned limited access facility and is identified in the Osceola County Expressway Authority (OCX) Master Plan and the CFX Visioning + 2040 Master Plan (CFX 2040 Master Plan). The CFX Governing Board approved four projects from the OCX Master Plan for further evaluation by way of concept, feasibility, and mobility studies. The four projects selected for further analysis are the Poinciana Parkway Extension/I-4 Connector, the Southport Connector Expressway, the Osceola Parkway Extension, and the Northeast Connector Expressway. These projects were chosen by the CFX Governing Board after staff members met with local city and county officials, civic groups, and chambers of commerce to better understand their transportation needs and the role CFX could play in implementing projects from the OCX Master Plan. The Northeast Connector Expressway would extend northeast from the planned Southport Connector Expressway at Florida's Turnpike to the planned Osceola Parkway Extension south of the Osceola/Orange County line, a distance of approximately 25 miles.

### Purpose of Report


The purpose of this report is to document the alternative mobility program development and evaluation effort for the Northeast Connector Expressway. Specifically, this report addresses the documentation of the purpose and need for the project; existing conditions within the study area; traffic considerations; design criteria; mobility alternatives evaluation; anticipated effects to the natural, human, and physical environment; and stakeholder involvement as well as an evaluation of the feasibility and viability of the proposed project.

### Project Location

The project location is shown on Figure ES 0-1. The study area begins at Florida's Turnpike, which is approximately two miles north of the Canoe Creek Service Plaza. The study area then extends northeast to the Orange/Osceola County line. The western boundary of the study area is formed by a line approximately 600 feet west of the corridor alignment identified in the State Road (SR) 417 Southern Extension Concept Development and Evaluation Study (Wilbur Smith Associates, Inc. [WSA], May 2008) and in the Preliminary Alignment Evaluation for Southport Connector East from Canoe Creek Road (County Road [CR] 523) to SR 528 (Kimley-Horn and Associates, Inc. [KHA], June 2010). To the east, the study area is bounded by a line approximately 600 feet east of a potential corridor that extends east of the planned developments in the area. The western and eastern limits of the study area span the area for consideration of reasonable corridor alignment alternatives for the Northeast Connector Expressway.



**Legend**

 Study Boundary

## **Previous Studies Related to the Project**

The following three previous reports addressed the Northeast Connector Expressway:

- SR 417 Southern Extension Concept Development and Evaluation Study, WSA, May 2008 (Referred to herein as the WSA Report.)
- Preliminary Alignment Evaluation for Southport Connector East from Canoe Creek Road (CR 523) to SR 528, KHA, June 2010 (Referred to herein as the KHA Report.)
- Northeast Connector Expressway Preliminary Alignment Feasibility Study Tier 1 Corridor Analysis Memorandum, Vanasse Hangen Brustlin, Inc. (VHB), February 2016 (Referred to herein as the VHB Report.)

The WSA Report was completed for the Orlando-Orange County Expressway Authority (now CFX) and addressed the need and potential corridors for a limited access expressway connecting SR 417/SR 528 in east Orange County, southward to Florida's Turnpike in Osceola County, and west to Interstate 4 (I-4) in Osceola or Polk County. Six corridors were recommended for further study in subsequent development phases. This report served as a beginning point for additional corridor feasibility studies conducted by OCX and was ultimately adopted in the OCX Master Plan.

The KHA Report was completed for Osceola County to identify the projected impacts of two alternative alignments for a future expressway starting at the Southport Connector at Canoe Creek Road (CR 523) and extending northeast to SR 528. The two alternative alignment concepts are described below:

- The first alternative alignment was a refinement of Alignment 5 as identified in the WSA Report described above. This alignment is located to the north and west of Lake Gentry and is referred to as the West Alignment.
- The second alternative alignment was a refinement of an alignment identified by the Canoe Creek Road (CR 523) community residents. This alignment is located to the south and east of Lake Gentry and is referred to as the East Alignment.

The VHB Report was prepared for OCX and Osceola County to investigate the potential for alternative alignments to the East Alignment from south of US 192 (SR 500) to Nova Road (CR 532). The intent of the evaluation was to take into consideration an approved planned development (Harmony) within the area. Several alternative alignments were developed and evaluated within this study area. The report recommended that two alignments be advanced to a Tier 2 evaluation for further comparison to the OCX Master Plan.

As a result of the VHB Report on July 12, 2016, OCX approved a modification to the OCX Master Plan to adjust the Northeast Connector Expressway Corridor in the vicinity of Harmony. As of this time, Osceola County has not included the modification to the Northeast Connector Expressway corridor in the Osceola County Comprehensive Plan.

## **Project Need and Purpose**

The need for the project is to provide system linkage, provide regional connectivity and mobility, meet social and economic needs, provide additional transportation capacity, achieve consistency



with transportation plans, provide multi-modal opportunities, and improve safety and evacuation support.

The purposes of this proposed new limited-access facility include providing a connection from Florida's Turnpike to US 192 (SR 500) and the proposed Osceola Parkway Extension, enhancing the mobility of the area's growing population and economy, relieving congestion on local roads, providing for the incorporation of transit options, and promoting regional connectivity.

## **II. Feasibility and Viability of the Proposed Project**

### **Existing Conditions Summary**

The existing major roadways within the study area are Florida's Turnpike, Canoe Creek Road (CR 523), Narcoossee Road (CR 15), Hickory Tree Road (CR 534), US 192 (SR 500), Old Melbourne Highway (CR 500A), and Nova Road (CR 532). State roads in the study area (i.e., Florida's Turnpike and US 192 [SR 500]) have consistent growth rates between 1.20 and 2.51 percent per year. The northern portions of Narcoossee Road (CR 15) have experienced the highest growth rates, with rates ranging from 5.71 to 15.03 percent per year. All of the roadways currently operate with a volume to capacity (V/C) ratio of less than 1.0, which signifies sufficient capacity and no congestion.

Land types found within the project area are predominantly classified as Wetlands, Agriculture, or Urban and Built-up.

The study area includes a portion of the eastern chain of lakes, extending from Lake Myrtle to the north and Lake Gentry to the south, in the upper basin of the Kissimmee River watershed within the South Florida Water Management District (SFWMD). many of the waterbodies in the area of interest are hydraulically connected by major drainage canals. Canals C-30, C-32C, C-33, and C-34 are equipped with pump stations used to regulate lake levels in Lakes Gentry, Alligator, Center, Coon, Trout, Lizzie, Brick, Joel, Myrtle, and Preston.

Wetlands within the study area are primarily comprised of large forested systems making up linear sloughs dominated by cypress (*Taxodium* sp.) within the interior and transitioning into a mixture of hardwoods and pines through the exteriors and riparian areas. While field reviews sufficient to assess the qualitative aspects of wetlands within the study area were not conducted, wetlands within the eastern portions of the study area were assumed to be generally of higher quality than those in the western portion. This is primarily due to size, adjacent land uses, proximity to developed areas/upland buffers, wildlife utilization/documentation through literature reviews and available GIS data, and connectivity to regionally significant systems, such as the Econlockhatchee River system.

Several federal and state listed species have the potential to occur within the study area. The entire study area is located within consultation areas for the federally threatened Audubon's crested caracara, federally endangered Everglade snail kite, federally endangered Florida grasshopper sparrow, Lake Wales Ridge plants, federally endangered red-cockaded woodpecker,

and the federally threatened Florida scrub-jay. The study area does not contain essential fish habitats.

Three federally protected bald eagle nests are located in the study area near Sardine Lake, Lake Conlin, and the Econlockhatchee River. A colony of red-cockaded woodpeckers are located within the TM Econ Mitigation Bank. A wading bird rookery historically occurred within the Lake X Mitigation Bank. Seven wood stork nesting colony core foraging areas fall within the study area. Additionally, Florida scrub-jays historically occurred just outside of and may occur within the study area because similarly contiguous “scrub-jay habitats” exist within the study area. These “scrub-jay habitats” are characterized by permeable soils with drought-tolerant scrub-oak species and other upland habitats and may be used by state threatened gopher tortoises. The prairie habitats may be used by state threatened Florida burrowing owls. Wetlands and lakes may be used as foraging or nesting sites by various wading birds, including the Everglade snail kite, state threatened Florida sandhill crane, and little blue heron. Most of the study area may provide habitats for the federally threatened eastern indigo snake and state threatened Sherman’s fox squirrel.

The Florida Natural Areas Inventory (FNAI) GIS database depicts several park and recreational lands within the study area (see Figure 3-5): Isle of Pine Preserve, Lake Lizzie Conservation Area, county boat ramps and parks, and wetland mitigation areas, such as TM Econ and Lake X Ranch. The study area also contains Florida Forever Lands and priority habitat, including Big Bend Swamp/Holopaw Ranch Florida Forever Lands. These Florida Forever Lands serve as a corridor between Triple N Wildlife Management Area (WMA) and Three Lakes WMA in Osceola County, which are located south of the project corridor. The WMAs will not be impacted by the proposed project. The study area does not contain any Areas of Critical State Concern, state parks, WMAs, or Florida Scenic Highways and Byways.

Three mitigation banks are located within the project area: TM Econ Orange County; TM Econ Phases 1, 2, and 3; and Lake X Ranch. The most prominent would be Lake X Ranch, which surrounds Lake Conlin and encompasses approximately seven percent of the study area. The TM Econ Mitigation Bank areas account for a fraction of the study area near the Osceola/Orange County line.

A review of the Osceola County Property Appraiser data and historic aerial photographs suggested the potential for historic resources within the project area (Scarborough, 2017; USDA, 1944, 1959). These resources do not appear to be eligible for listing in the NRHP; however, a field survey will be necessary for proper identification and evaluation.

The archaeological background research indicated that no recorded archaeological sites are impacted by the corridor alternatives. However, 10 archaeological sites have been recorded within one mile of the study area, including the Albritton Burial Mound. All of the sites have been determined ineligible for listing in the NRHP by the SHPO except for the burial mound, which has not been evaluated.

A preliminary contamination screening evaluation was conducted for the study area. Six potential contamination sites were identified within the study area. Of these sites, two were rated as low potential and four were rated as high potential.

Twelve Utility Agencies/Owners (UAOs) have been identified within the project study area. Of these, the major utilities within the study are consisted of Duke Energy transmission lines, Orlando Utilities Commission transmission lines and sub-stations, and Florida Gas Transmission gas transmission pipelines.

### **Mobility Alternatives Evaluation Summary**

Several mobility alternatives were considered for the Northeast Connector Expressway. These included the No-Build alternative, transportation systems management and operations (TSM&O) alternative, mass transit technology and intermodal facilities, and a tolled limited-access alternative.

#### *No-Build Alternative*

Without the Northeast Connector Expressway, several roadways will operate with a volume to capacity (V/C) ratio greater than 1.0, which signifies the demand exceeds the roadway capacity and significant congestion will result. Roads over capacity include Narcoossee Road (CR 15) (north of Rummell Road), US 192 (SR 500) (from Narcoossee Road [CR 15] to Old Melbourne Highway [CR 500A]), and Nova Road (CR 532) (from Pine Grove Road to the Northeast Connector Expressway interchange location).

#### *Transportation Systems Management and Operations Alternative*

Based on the No-Build V/C conditions, it is possible that TSM&O improvements, when combined with alternative intersection treatments, could provide adequate capacity to serve the projected design year traffic within the study area. However, no TSM&O alternative can fulfill the need and purpose for the project. Therefore, no TSM&O options were identified for the study.

#### *Mass Transit Technology and Intermodal Facilities*

There are currently no multi-modal improvements recommended for consideration as part of the mobility program alternatives. CFX is in the beginning stages of the multi-modal financier partnership model. Characteristics supportive of this model include densely developed areas with limited ability to provide additional highway capacity. Thus, while portions of the CFX service area are supportive of this model, the expansion of expressways into Osceola County is not. There will likely come a time when multi-modal considerations will be appropriate for this area; however, it is premature to consider them now. Furthermore, the technological advancements being made in transportation (i.e., automated vehicles) make it likely that CFX's current typical section for expressways will be able to accommodate additional modes in the future.

#### *Tolled Limited Access Alternatives*

After an initial screening of alternative corridor alignments, five alternative corridor alignments were identified for more detailed evaluation. All of the alternative corridor alignments utilize a



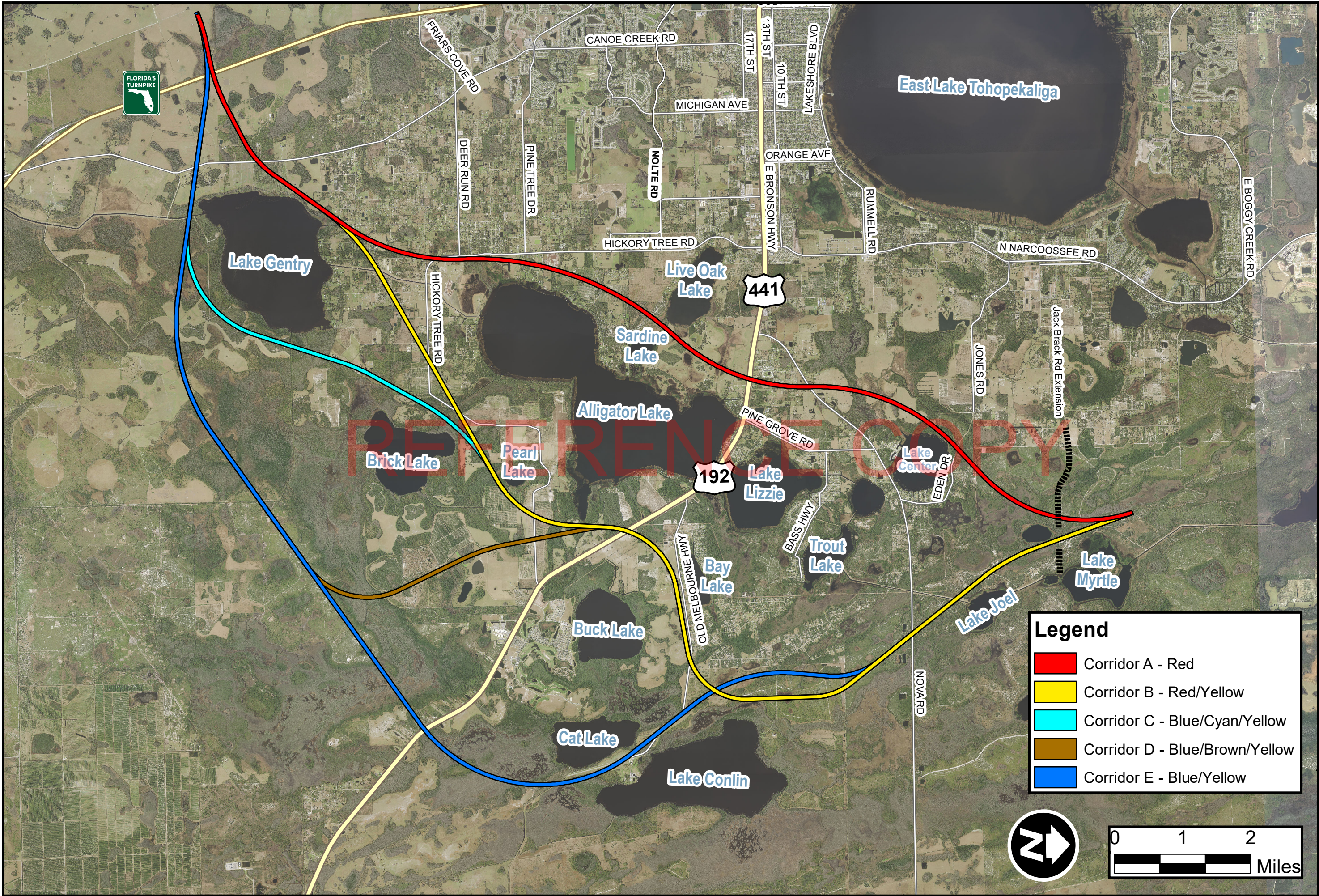
typical section which consists of two 12-foot travel lanes in each direction separated by an 88-foot median. The outside shoulder is 12 feet wide (10 feet paved) and the inside shoulder is eight feet wide (four feet paved). The border width is 94 feet. The minimum right-of-way width is 324 feet. The corridors recommended for further consideration are shown on Figure ES 0-2 and are designated as Corridor A – Red, Corridor B – Red/Yellow, Corridor C – Blue/Cyan/Yellow, Corridor D – Blue/Brown/Yellow, and Corridor E – Blue/Yellow, as described below.

Corridor A – Red begins at a proposed interchange with Florida’s Turnpike and traverses in a northeasterly direction to a proposed interchange at Canoe Creek Road (CR 523). It continues in a northeasterly direction to the west and north of Lake Gentry and crosses Hickory Tree Road (CR 534) to a proposed interchange at Deer Run Road. It then continues in a northerly direction east of Hickory Tree Road (CR 534) and west of Alligator Lake. Corridor A – Red crosses Alligator Lake Road and then traverses between Live Oak Lake and Sardine Lake to a proposed interchange at US 192 (SR 500) east of Nova Road (CR 532). It then crosses Nova Road (CR 532) to a proposed interchange with the proposed extension of Jack Brack Road. The project terminates north of the proposed interchange with Jack Brack Road at the connection to the proposed Osceola Parkway Extension.

Corridor B – Red/Yellow begins at a proposed interchange with Florida’s Turnpike and traverses in a northeasterly direction to a proposed interchange at Canoe Creek Road (CR 523). It continues in a northeasterly direction, west and north of Lake Gentry and crosses the C-33 canal to a proposed interchange at Hickory Tree Road (CR 534). It then continues in a northeasterly direction east of Alligator Lake and between Buck Lake and Pearl Lake to a proposed interchange at US 192 (SR 500). Corridor B – Red/Yellow continues in an easterly direction south of Old Melbourne Highway (CR 500A) and then turns in a northerly direction west of Lake Conlin. It continues in a northwesterly direction to a proposed interchange with Nova Road (CR 532). It then continues in a northwesterly direction to a proposed interchange with the proposed extension of Jack Brack Road. The project terminates north of the proposed interchange with Jack Brack Road at the connection to the proposed Osceola Parkway Extension.

Corridor C – Blue/Cyan/Yellow begins at a proposed interchange with Florida’s Turnpike and traverses in an easterly direction to a proposed interchange at Canoe Creek Road (CR 523). It continues in an easterly direction, south of Lake Gentry, and crosses the C-34 canal. It then continues in a northeasterly direction to a proposed interchange with Hickory Tree Road (CR 534). It continues on in a northeasterly direction between Buck Lake and Pearl Lake and east of Alligator Lake to a proposed interchange at US 192 (SR 500). Corridor C – Blue/Cyan/Yellow continues in an easterly direction south of Old Melbourne Highway (CR 500A) and then turns in a northerly direction west of Lake Conlin. It continues in a northwesterly direction to a proposed interchange with Nova Road (CR 532). It then continues in a northwesterly direction to a proposed interchange with the proposed extension of Jack Brack Road. The project terminates north of the proposed interchange with Jack Brack Road at the connection to the proposed Osceola Parkway Extension.







Corridor D – Blue/Brown/Yellow begins at a proposed interchange with Florida’s Turnpike and traverses in an easterly direction to a proposed interchange at Canoe Creek Road (CR 523). It continues in an easterly direction, south of Lake Gentry, and crosses the C-34 canal. It then continues in a northeasterly direction south of Buck Lake and continues in a northerly direction to a proposed interchange at US 192 (SR 500). Corridor D – Blue/Brown/Yellow continues in an easterly direction south of Old Melbourne Highway (CR 500A) and then turns in a northerly direction west of Lake Conlin. It continues in a northwesterly direction to a proposed interchange with Nova Road (CR 532). It then continues in a northwesterly direction to a proposed interchange with the proposed extension of Jack Brack Road. The project terminates north of the proposed interchange with Jack Brack Road at the connection to the proposed Osceola Parkway Extension.

Corridor E – Blue/Yellow begins at a proposed interchange with Florida’s Turnpike and traverses in an easterly direction to a proposed interchange at Canoe Creek Road (CR 523). It continues in an easterly direction, south of Lake Gentry, and crosses the C-34 canal. It then continues in a northeasterly direction south of Buck Lake to a proposed interchange at US 192 (SR 500). Corridor E – Blue/Yellow continues in a northerly direction between Cat Lake and Lake Conlin. It continues in a northwesterly direction to a proposed interchange with Nova Road (CR 532). It then continues in a northwesterly direction to a proposed interchange with the proposed extension of Jack Brack Road. The project terminates north of the proposed interchange with Jack Brack Road at the connection to the proposed Osceola Parkway Extension.

Table ES-0-1 summarizes the design elements associated with each alternative.

Table ES-0-1  
Summary of Design Elements

Design Element	Unit of Measure	Corridor A – Red	Corridor B – Red/Yellow	Corridor C – Blue/Cyan/Yellow	Corridor D – Blue/Brown/Yellow	Corridor E – Blue/Yellow
Alternative Length (approximate)	Miles	16	19	21	23	23
Proposed Right-of-Way Width (general and varies at interchanges)	feet	324	324	324	324	324
Right-of-Way Area (including proposed ponds)	acres	1,349	1,447	1,581	1,707	1,758
Proposed Bridges (total structures per Alternative and total length of all structures)	Number of Structures	32	42	38	36	40
	feet	20,306	21,655	21,146	21,049	22,632
Proposed Interchanges	Number	5	6	6	5	5
Projected 2045 Annual AADT Volume (as a tolled facility)	vehicles	25,600	16,900	16,900	13,900	13,900

### Anticipated Effects Summary

There is the potential for major utility conflicts, both existing and planned. Existing utility conflicts range from two (Corridor E – Blue/Yellow) to 5 Corridor A – Red and Corridor B – Red/Yellow). Planned utility conflicts range from zero (Corridor C – Blue/Cyan/Yellow, Corridor D – Blue/Brown/Yellow, and Corridor E – Blue/Yellow) to eight (Corridor A - Red). Potential contamination site conflicts range from zero (Corridor B – Red/Yellow, Corridor C – Blue/Cyan/Yellow, and Corridor D – Blue/Brown/Yellow) to one (Corridor A – Red and Corridor E – Blue/Yellow). No alternatives cross any railroads.

Corridor A – Red impacts a Hickory Tree Community Park. Coordination with Osceola County will be required.

There is a potential for impacts to historic structures, although it is unlikely that any of the structures would be eligible for listing on the National Register of Historic Places. The potential impacts to historic structures ranges from zero (Corridor E – Blue/Yellow) to 15 (Corridor A – Red). Each of the corridor alternatives has the potential to impact one linear historic resource. No archaeological resources are anticipated to be impacted.

Impacts to ponds and lakes ranges from zero acres (Corridor E – Blue/Yellow) to 13 acres (Corridor B – Red/Yellow and Corridor C – Blue/Cyan/Yellow). Conflicts with canals/regulated floodways range from one (Corridor A – Red) to three (Corridor B – Red/Yellow and Corridor C – Blue/Cyan/Yellow). Impacts to flood hazard areas (100-year floodplain) range from 344 acres (Corridor B – Red/Yellow) to 613 acres (Corridor E – Blue/Yellow). Impacts to wetlands range from 139 acres (Corridor A – Red) to 355 acres (Corridor E – Blue/Yellow). Impacts to potential habitat for federal listed species range from 1,044 acres (Corridor A – Red) to 1,249 acres (Corridor D – Blue/Brown/Yellow). Impacts to potential habitat for state listed species range from 1,110 acres (Corridor A – Red) to 1,281 acres (Corridor D – Blue/Brown/Yellow). Corridor A – Red has high potential for impacts to the protected species. Most notably, the corridor is within the 330-foot primary protection zone for one bald eagle nest (Nest No. OS122), which is located between Sardine Lake and Live Oak Lake and just west of Alligator Lake. All the corridors, with the exception of Corridor B – Red/Yellow have a high impact on potential species. Corridor B – Red/Yellow has a medium impact on potential species. Impacts to the Lake X Ranch Mitigation Bank range from zero acres (Corridor A – Red) to 150 acres (Corridor E – Blue/Yellow). No conservation easements are impacted.

Right-of-way needs range from 1,349 acres (Corridor A – Red) to 1,758 acres (Corridor E – Blue/Yellow). Potential residential impacts (including partially impacted parcels) range from 3 (Corridor E – Blue/Yellow) to 367 (Corridor A – Red). Potential non-residential impacts (including partially impacted parcels) range from 118 (Corridor D – Blue/Brown/Yellow) to 232 (Corridor A – Red). Corridor A – Red impacts two community facilities. The other corridor alternatives do not impact any community facilities. Corridor A – Red impacts one park and recreational facility. The other corridor alternatives do not impact any parks and recreational All the corridor alternatives impact the Florida Greenways and Trails system along Canoe Creek Road, and the Florida National Scenic Trail in several locations. Negative community cohesion effects are considered low for Corridor C – Blue/Cyan/Yellow, Corridor D – Blue/Brown/Yellow and Corridor E – Blue/Yellow; and medium for Corridor A – Red and Corridor B – Red/Yellow. Socioeconomic impacts to special populations are considered low for all corridor alternatives except for Corridor A – Red, which is rated medium. Impacts to proposed developments and developments of regional impact range from 622 acres (Corridor A – Red) to 890 acres (Corridor D – Blue/Brown/Yellow).

Table ES-0-2 summarizes the anticipated effects on the physical, cultural, natural and social environments for each alternative.

Table ES-0-2  
Summary of Anticipated Effects

Evaluation Criteria	Unit of Measure	Corridor A – Red	Corridor B – Red/Yellow	Corridor C – Blue/Cyan/Yellow	Corridor D – Blue/Brown/Yellow	Corridor E – Blue/Yellow
<b>Physical</b>						
Major Utility Conflicts - Existing	No. of Conflicts	5	5	3	3	2
Major Utility Conflicts - Planned	No. of Conflicts	8	5	0	0	0
Contamination Sites & Facilities	No. of Conflicts	2	0	0	0	1
Railroad Involvement	No. of Conflicts	0	0	0	0	0
<b>Cultural Environment</b>						
Public Lands	acres	1	0	0	0	0
Section 4(f) Coordination Required (Public Recreation Lands, Wildlife Refuges, etc.)	Y/N	N	N	N	N	N
Potential Historic Resources	No. of Conflicts	16	4	3	2	0
Potential Historic Linear Resources (Canals/Highways/Railroads)	No. of Resources	2	5	6	5	5
Potential Archaeological Resources	No. of Resources	0	0	0	0	0
<b>Natural Environment</b>						
Water Features						
Ponds / Lakes	acres	11	13	14	9	6
Canals/Regulated Floodways	No. of Conflicts	1	3	3	2	2
Flood Hazard Areas - 100 Year Floodplain	acres	417	344	409	460	613
Wetlands (non-forested and forested)	acres	139	211	232	324	357
Potential Habitat - Federal Listed Species	acres	1,044	1,153	1,077	1,249	1,180
Potential Habitat - State Listed Species	acres	1,109	1,216	1,207	1,206	1,256
Potential Bald Eagle Nest	Y/N	Y	N	N	N	N
Potential Species Impacts (composite rating)	Rating	High	Medium	High	High	High
Mitigation Banks						
Lake X Ranch Mitigation Bank	acres	0	92	92	92	150
Conservation Easements	acres	0	0	0	0	0

Evaluation Criteria	Unit of Measure	Corridor A – Red	Corridor B – Red/Yellow	Corridor C – Blue/Cyan/Yellow	Corridor D – Blue/Brown/Yellow	Corridor E – Blue/Yellow
<b>Social</b>						
Right-of-Way Area (including proposed ponds)	acres	1,349	1,447	1,581	1,707	1,758
Potential Residential Impacts (includes partially impacted parcels)	Total Parcels	365	74	22	28	3
<i>Existing</i>	<i>Parcels</i>	<i>181</i>	<i>55</i>	<i>3</i>	<i>9</i>	<i>3</i>
<i>Planned</i>	<i>Parcels</i>	<i>186</i>	<i>19</i>	<i>19</i>	<i>19</i>	<i>0</i>
Potential Non-Residential Impacts (includes partially impacted parcels)	Total Parcels	232	152	141	118	122
<i>Existing</i>	<i>Parcels</i>	<i>232</i>	<i>151</i>	<i>140</i>	<i>117</i>	<i>122</i>
<i>Planned</i>	<i>Parcels</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>0</i>
Community Facilities	No. of Conflicts	2	0	0	0	0
Parks and Recreational Facilities (public and private)	No. of Conflicts	1	0	0	0	0
Trails	No. of Conflicts	2	5	5	5	7
Community Cohesion Effects	Ranking	Medium	Medium	Low	Low	Low
Socioeconomic Impacts to Special Populations	Ranking	Medium	Low	Low	Low	Low
Proposed Development / Development of Regional Impact	acres	622	761	806	890	887

### Stakeholder Involvement Summary

Public involvement and interagency coordination were an integral part of the assessment process, and multiple opportunities for participation were provided during the study. A corridor-wide Public Involvement Plan (PIP) was established to initiate and maintain early, meaningful, continuous, and high-level public and stakeholder involvement throughout the study period. The public involvement techniques utilized provided information to, and helped obtain vital input from citizen, residential and business groups; elected and appointed officials; other government entities; environmental advocates; civic and community groups; as well as others interested in the corridor-wide implications of the study segments. Public engagement provided crucial input and helped to resolve issues and minimize negative impacts so that CFX could decide how best to develop projects along this corridor that meet the needs of the surrounding communities. A complete summary of public involvement efforts and individual meeting minutes are included in Chapter 8 of this report.

### Projected Project Costs Summary

The range of project costs is from \$1,195,700,00 for Corridor A – Red to \$1,409,000,000 for Corridor E – Blue/Yellow. Table ES-0-3 summarizes the projected costs for each alternative, which include roadway construction, bridge construction, interchange construction, toll collection equipment, right-of-way (including ponds), and mitigation for wetlands and wildlife. All costs are in 2017 dollars.

Table ES-0-3  
Summary of Projected Costs

Cost Element	Corridor A – Red	Corridor B – Red/Yellow	Corridor C – Blue/Cyan/Yellow	Corridor D – Blue/Brown/Yellow	Corridor E – Blue/Yellow
Roadway Construction	\$339,400,000	\$372,000,000	\$393,200,000	\$488,500,000	\$500,600,000
Bridges Construction	\$67,600,000	\$92,500,000	\$79,900,000	\$73,200,000	\$98,400,000
Interchanges Construction	\$457,800,000	\$475,200,000	\$519,800,000	\$483,200,000	\$493,400,000
Toll Collection Equipment	\$5,100,000	\$5,100,000	\$5,100,000	\$5,100,000	\$5,100,000
Right-of-Way (including ponds)	\$298,900,000	\$242,600,000	\$210,600,000	\$201,600,000	\$210,800,000
Mitigation, Wetlands, & Wildlife	\$26,900,000	\$64,800,000	\$67,400,000	\$80,100,000	\$100,700,000
<b>Total</b>	<b>\$1,195,700,000</b>	<b>\$1,252,200,000</b>	<b>\$1,276,000,000</b>	<b>\$1,331,700,000</b>	<b>\$1,409,000,000</b>

### Projected Traffic and Revenue Summary

Table ES-0-4 summarizes the viability of the corridor alternatives. Present Value revenues are compared to Total Costs for each corridor alternative. The revenues can range between -25% on the low side to +20% on the high side. These percentages have been applied to the projected revenues. The projected Present Value revenues were divided by the total project cost to determine the percentage for assessing viability. None of the alternatives have revenue percentages equal to at least fifty percent (50%) of the cost of the project; therefore, none of the alternatives are viable for the projected conditions. Corridor A-Red has the highest percent revenue of cost, reaching 18% for the high side revenue. Corridor D-Blue/Brown/Yellow has the lowest percent revenue of cost at 5% for the low side revenue.



Table ES-0-4  
Viability of Corridor Alternatives

Alternative	Total Cost	PV Revenue Stream	Range on Low Side	Range on High Side	Projected Low Revenue	Percent of Total Cost	Projected High Revenue	Percent of Total Cost
Corridor A - Red	\$1,195,700,000	\$177,400,000	-25%	20%	\$130,000,000	11%	\$210,000,000	18%
Corridor B - Red/Yellow	\$1,252,200,000	\$110,600,000	-25%	20%	\$80,000,000	6%	\$130,000,000	10%
Corridor C - Blue/Cyan/Yellow	\$1,276,000,000	\$110,600,000	-25%	20%	\$80,000,000	6%	\$130,000,000	10%
Corridor D - Blue/Brown/Yellow	\$1,331,700,000	\$75,500,000	-25%	20%	\$60,000,000	5%	\$90,000,000	7%
Corridor E - Blue/Yellow	\$1,409,000,000	\$123,300,000	-25%	20%	\$90,000,000	6%	\$150,000,000	11%

### **Alternative Comparison Matrix**

The corridor alternatives comparison matrices are provided in Tables ES-1, ES-2, and ES-3. These tables include the information previously presented and described in Table ES-1 (Summary of Design Elements), Table ES-2 (Summary of Anticipated Effects), Table ES-3 (Summary of Projected Costs), and Table ES-5 (Projected Toll Revenues). This matrix provides a convenient comparison of the various information and effects of all the alternatives evaluated.

### **III. Recommendations for The Proposed Project**

The purpose of this Concept, Feasibility, and Mobility report is to determine if the identified alternatives are feasible from an engineering and environmental standpoint and viable from a financial standpoint. Regarding engineering and environmental issues, no “fatal flaws” have been observed. However, at this time, the Northeast Connector Expressway does not meet the viability requirements to move forward to the PD&E phase. A project is considered viable if the toll revenue over 30 years covers at least 50% of the project costs. The Northeast Connector Expressway projected toll revenue compared to the estimated cost ranges from 7% to 18%, depending on the alternative and revenue stream. Therefore, the Northeast Connector Expressway is considered feasible but not viable at this time.

REFERENCE COPY

# **1. Introduction**

## **1.1 Project Description**

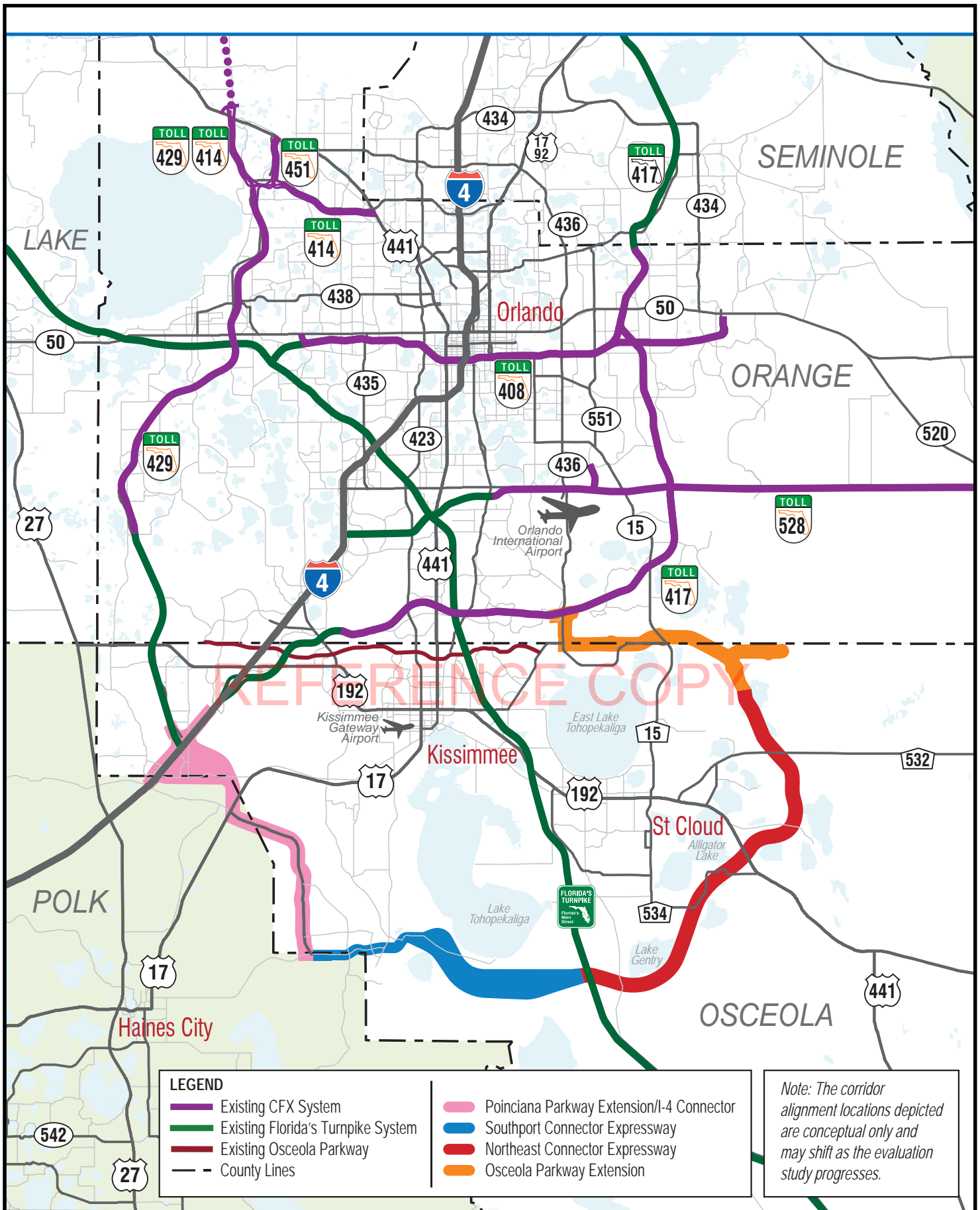
The Concept, Feasibility & Mobility Study for the Northeast Connector Expressway was initiated by the Central Florida Expressway Authority (CFX). The Northeast Connector Expressway is a planned limited access facility and is identified in the Osceola County Expressway Authority (OCX) Master Plan and the CFX Visioning + 2040 Master Plan (CFX 2040 Master Plan). The CFX Governing Board approved four projects from the OCX Master Plan for further evaluation by way of concept, feasibility, and mobility studies. The four projects selected for further analysis are the Poinciana Parkway Extension/I-4 Connector, the Southport Connector Expressway, the Osceola Parkway Extension, and the Northeast Connector Expressway. These projects were chosen by the CFX Governing Board after staff members met with local city and county officials, civic groups, and chambers of commerce to better understand their transportation needs and the role CFX could play in implementing projects from the OCX Master Plan. Figure 1-1 shows the CFX Master Plan projects. The Northeast Connector Expressway would extend northeast from the planned Southport Connector Expressway at Florida's Turnpike to the planned Osceola Parkway Extension south of the Osceola/Orange County line, a distance of approximately 25 miles.

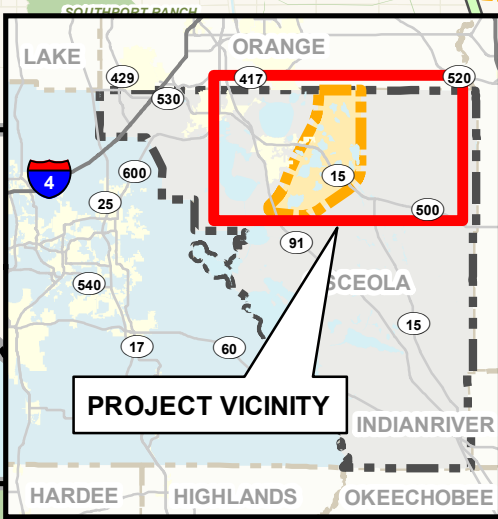
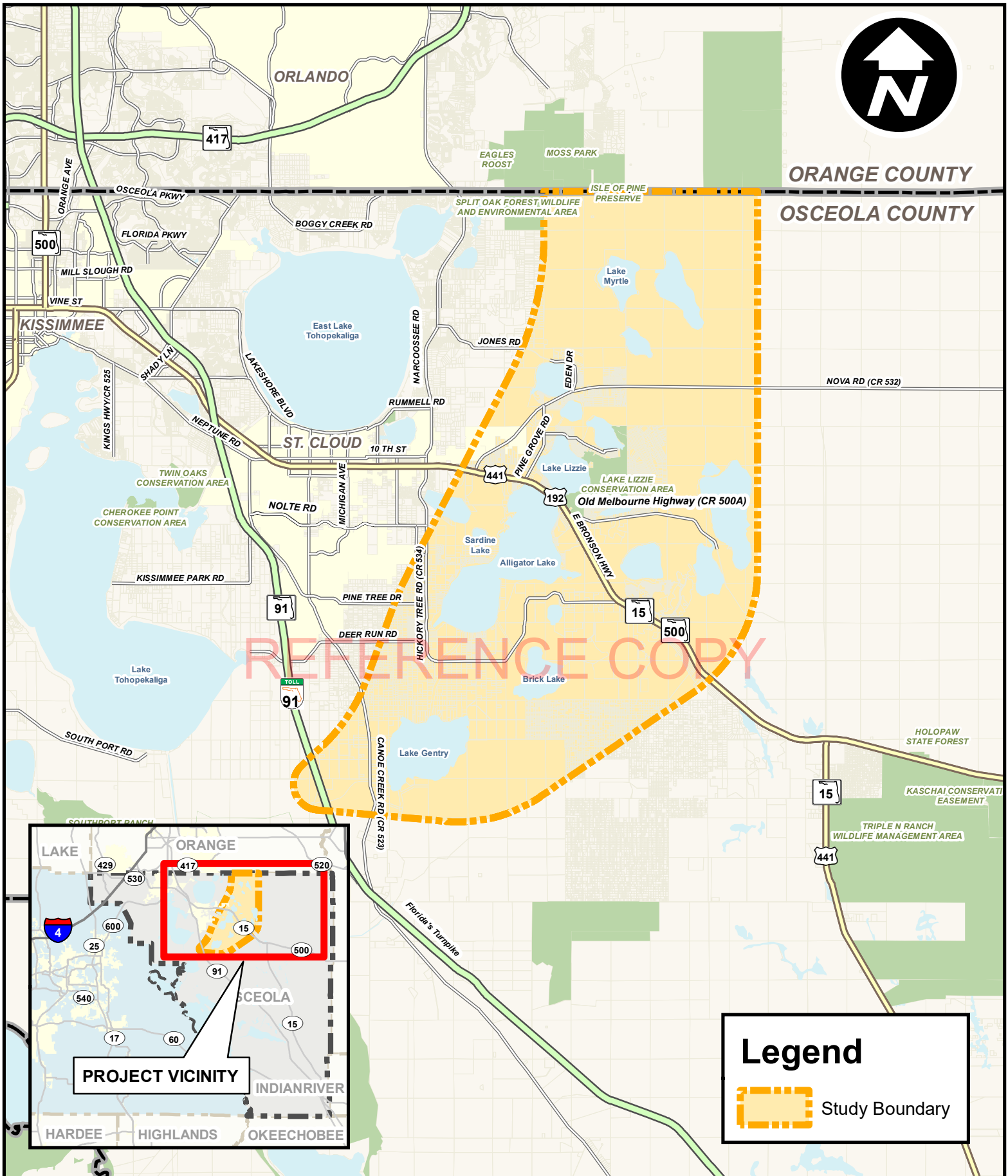
## **1.2 Purpose of Report**

The purpose of this report is to document the alternative mobility program development and evaluation effort for the Northeast Connector Expressway. Specifically, this report addresses the documentation of the purpose and need for the project; existing conditions within the study area; traffic considerations; design criteria; mobility alternatives evaluation; anticipated effects to the natural, human, and physical environment; and stakeholder involvement as well as an evaluation of the feasibility and viability of the proposed project.


## **1.3 Project Location**

The study area begins at Florida's Turnpike, which is approximately two miles north of the Canoe Creek Service Plaza. This distance provides for enough weaving distance between the Service Plaza and the proposed Northeast Connector Expressway interchange with Florida's Turnpike. The study area then extends northeast to the Orange/Osceola County line. The western boundary of the study area is formed by a line approximately 600 feet west of the corridor alignment identified in the State Road (SR) 417 Southern Extension Concept Development and Evaluation Study (Wilbur Smith Associates, Inc. [WSA], May 2008) and in the Preliminary Alignment Evaluation for Southport Connector East from Canoe Creek Road (County Road [CR] 523) to SR 528 (Kimley-Horn and Associates, Inc. [KHA], June 2010). To the east, the study area is bounded by a line approximately 600 feet east of a potential corridor that extends east of the planned developments in the area. The western and eastern limits of the study area span the area for consideration of reasonable corridor alignment alternatives for the Northeast Connector Expressway. The study area is shown on Figure 1-2.





**Legend**

 Study Boundary

## 1.4 Previous Studies Related to the Project

The following three previous reports addressed the Northeast Connector Expressway:

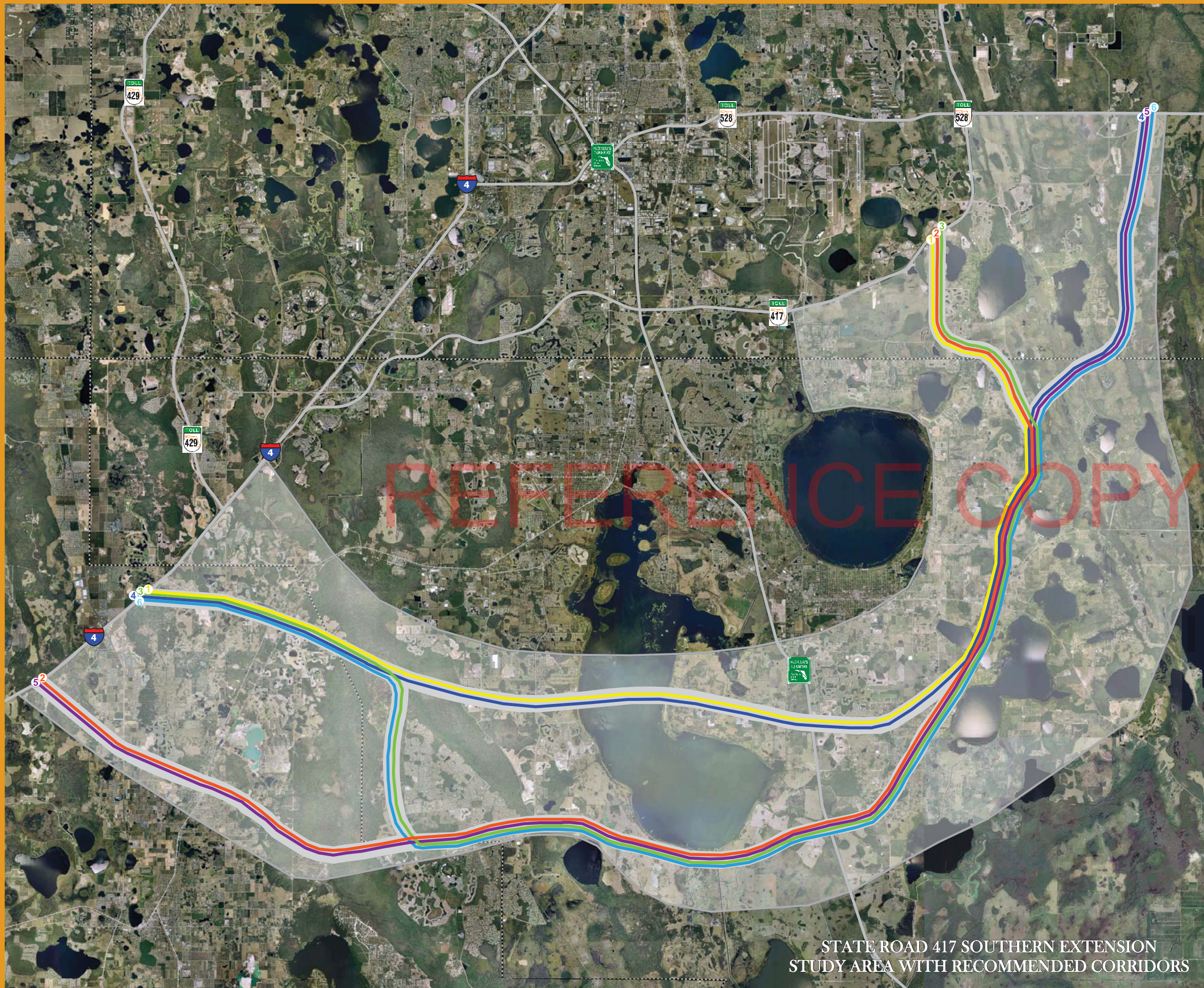
- SR 417 Southern Extension Concept Development and Evaluation Study, WSA, May 2008 (Referred to herein as the WSA Report.)
- Preliminary Alignment Evaluation for Southport Connector East from Canoe Creek Road (CR 523) to SR 528, KHA, June 2010 (Referred to herein as the KHA Report.)
- Northeast Connector Expressway Preliminary Alignment Feasibility Study Tier 1 Corridor Analysis Memorandum, Vanasse Hangen Brustlin, Inc. (VHB), February 2016 (Referred to herein as the VHB Report.)

The WSA Report was completed for the Orlando-Orange County Expressway Authority (now CFX) and addressed the need and potential corridors for a limited access expressway connecting SR 417/SR 528 in east Orange County, southward to Florida's Turnpike in Osceola County, and west to Interstate 4 (I-4) in Osceola or Polk County. Six corridors were recommended for further study in subsequent development phases. This report served as a beginning point for additional corridor feasibility studies conducted by OCX and was ultimately adopted in the OCX Master Plan. Figure 1-3 shows the six recommended corridors identified in the WSA Report.

The KHA Report was completed for Osceola County to identify the projected impacts of two alternative alignments for a future expressway starting at the Southport Connector at Canoe Creek Road (CR 523) and extending northeast to SR 528. The two alternative alignment concepts are shown on Figure 1-4. The alternative alignment concepts are described below:

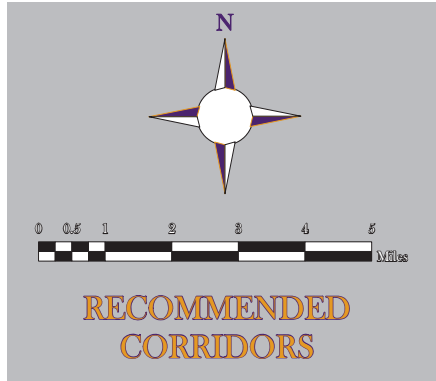
- The first alternative alignment was a refinement of Alignment 5 as identified in the WSA Report described above. This alignment is located to the north and west of Lake Gentry and is referred to as the West Alignment.
- The second alternative alignment was a refinement of an alignment identified by the Canoe Creek Road (CR 523) community residents. This alignment is located to the south and east of Lake Gentry and is referred to as the East Alignment.





STATE ROAD 417 SOUTHERN EXTENSION  
STUDY AREA WITH RECOMMENDED CORRIDORS

# SR 417 SOUTHERN EXTENSION CONCEPT DEVELOPMENT AND EVALUATION STUDY



## LEGEND

- 1 CORRIDOR
- 2 CORRIDOR
- 3 CORRIDOR
- 4 CORRIDOR
- 5 CORRIDOR
- 6 CORRIDOR

Please Note: All data sources were obtained from the Florida Geographic Data Library. (datadownloaded July - October 2007)  
The only WSA-created data shown is the study area boundary and the corridors being evaluated.

The corridors are graphically represented on this map for illustration purposes only. The purpose of this map is to illustrate the six viable corridors graphically; these lines should not be considered as potential road alignments.

FIGURE 6-5  
RECOMMENDED CORRIDORS  
APRIL 2008







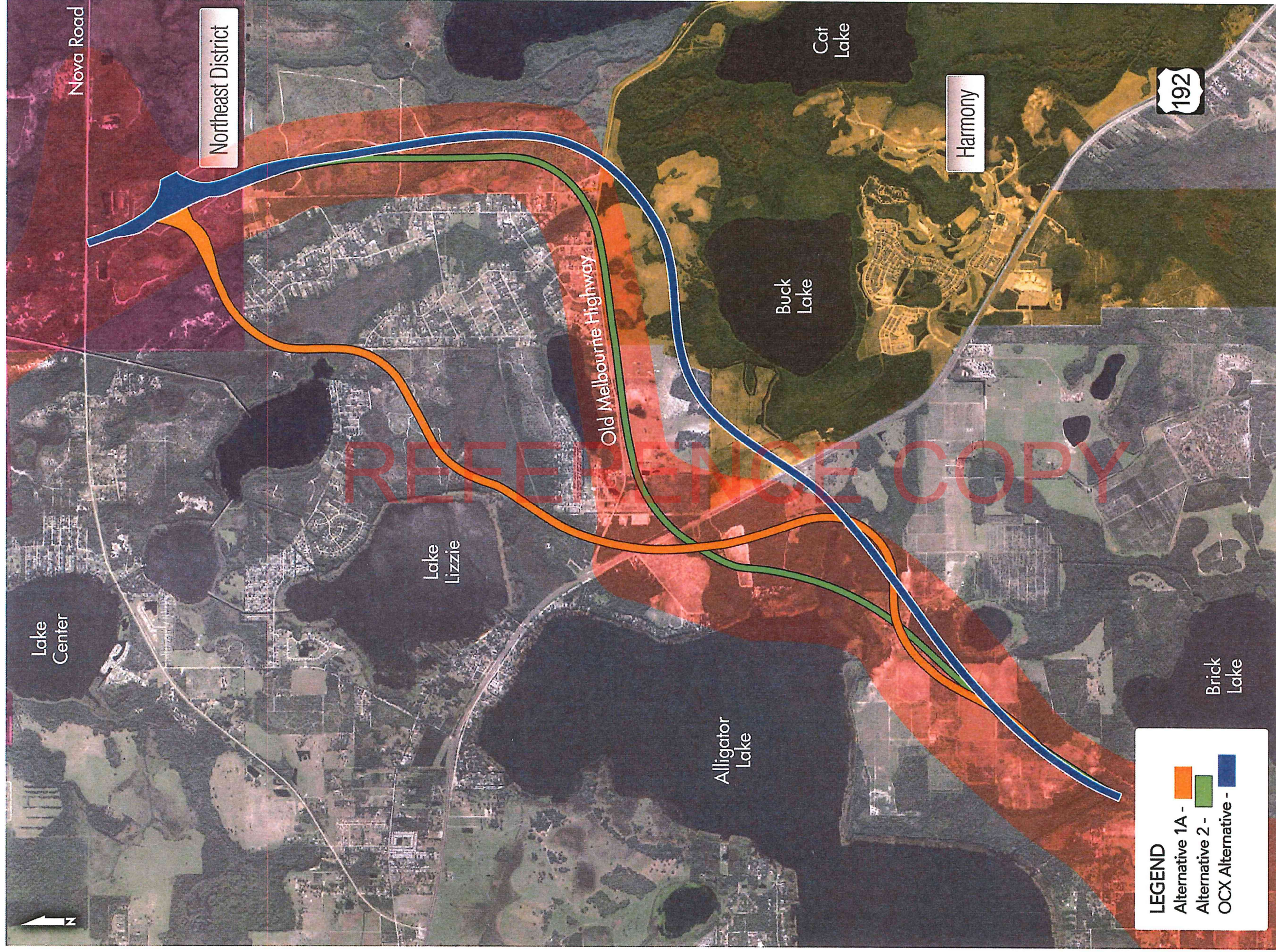


The VHB Report was prepared for OCX and Osceola County to investigate the potential for alternative alignments to the East Alignment from south of US 192 (SR 500) to Nova Road (CR 532). The intent of the evaluation was to take into consideration an approved planned development (Harmony) within the area. Several alternative alignments were developed and evaluated within this study area. The report recommended that two alignments be advanced to a Tier 2 evaluation for further comparison to the OCX Master Plan. The recommended alignments from the VHB Report are Alternative 1A (Orange) and Alternative 2 (Green) and are shown on Figure 1-5.

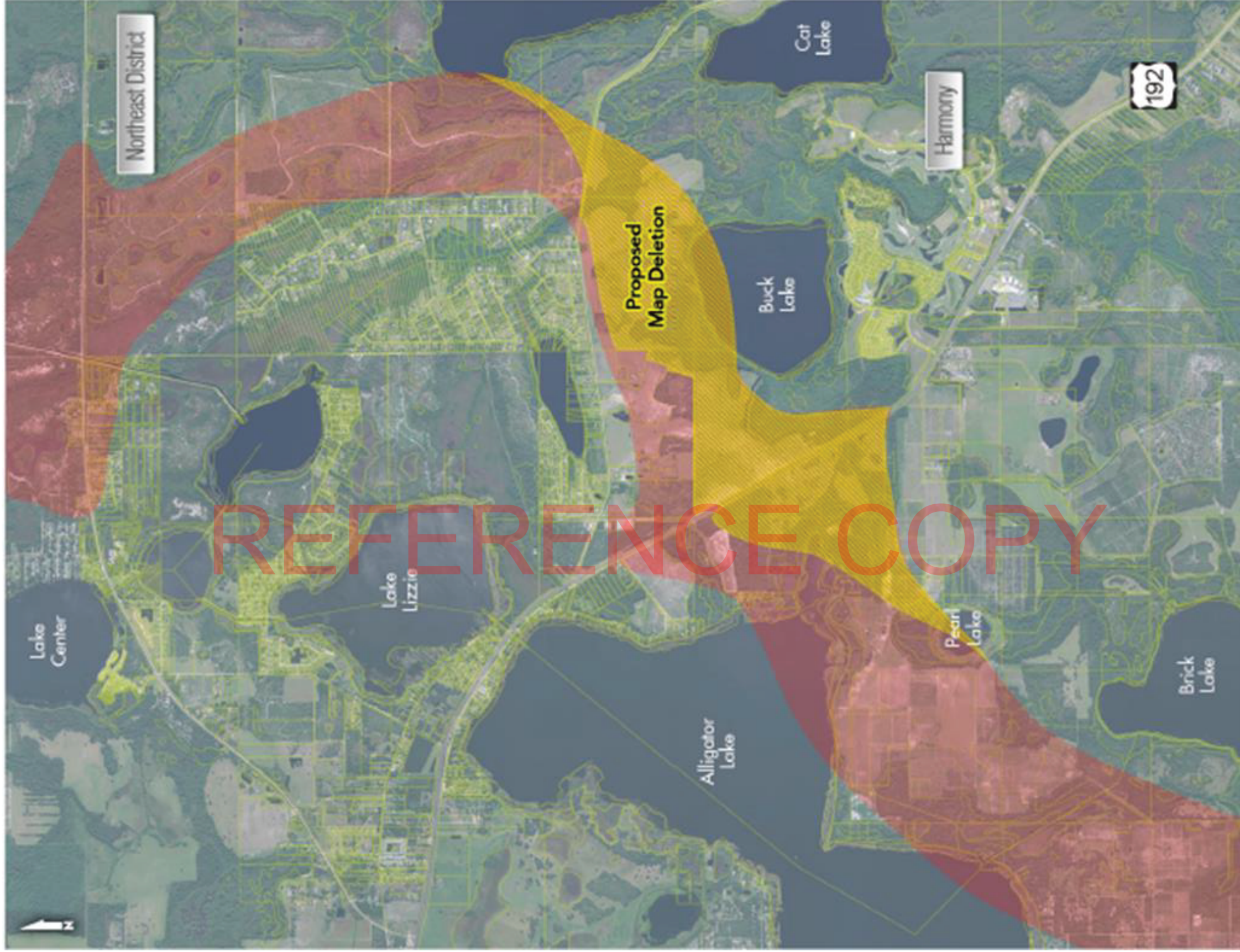
As a result of the VHB Report on July 12, 2016, OCX approved a modification to the OCX Master Plan to adjust the Northeast Connector Expressway Corridor in the vicinity of Harmony. The modified corridor is shown on Figure 1-6. As of this time, Osceola County has not included the modification to the Northeast Connector Expressway corridor in the Osceola County Comprehensive Plan.

REFERENCE COPY









**Figure 6**  
**Osceola County Expressway Authority Northeast Expressway Connector Corridor Amendment**



## 1.5 Other Projects Within or Near the Study Area

### 1.5.1 Additional CFX Feasibility Studies

As stated in Section 1.1 above, the CFX Governing Board approved four projects from the OCX Master Plan for further evaluation by way of concept, feasibility, and mobility studies. In addition to the Northeast Connector Expressway, the three other projects selected for further analysis include the Poinciana Parkway Extension/I-4 Connector Expressway, the Southport Connector Expressway, and the Osceola Parkway Extension. These are briefly described below.

**Poinciana Parkway Extension/I-4 Connector Expressway** – The study corridor of the proposed Poinciana Parkway Extension/I-4 Connector Expressway generally begins at the southern terminus of the existing Poinciana Parkway at Cypress Parkway. It then extends along the existing Poinciana Parkway alignment to the Osceola/Polk County line and then extends in a general north/northwest direction to connect with I-4. The study corridor encompasses portions of both Osceola and Polk counties and includes a proposed interchange with I-4. The goals of this proposed new limited-access facility include improving the roadway connection from I-4 to the greater Poinciana area, enhancing the mobility of the area's growing population and economy, relieving congestion on local roads, providing for the incorporation of transit options, and promoting regional connectivity.

**Southport Connector Expressway** – The study corridor of the proposed Southport Connector Expressway generally begins at the current southern terminus of the Poinciana Parkway at Cypress Parkway and extends eastward for approximately 13 miles to Florida's Turnpike. The study corridor encompasses portions of both Osceola and Polk counties. The goals of this proposed new limited-access facility include improving the roadway connection from the greater Poinciana area to Florida's Turnpike, enhancing the mobility of the area's growing population and economy, relieving congestion on local roads, providing for the incorporation of transit options, and promoting regional connectivity.

**Osceola Parkway Extension** – The study corridor of the proposed Osceola Parkway Extension begins approximately one mile west of the Boggy Creek Road and Osceola Parkway intersection and extends eastward along the Orange/Osceola County line for approximately six miles before turning south into Osceola County to meet the northern terminus of the proposed Northeast Connector Expressway. The project also includes a potential north/south segment linking to SR 417 in the general vicinity of the Boggy Creek Road interchange. The goals of this proposed new limited-access facility include providing for additional east-west capacity within the project area, enhancing the mobility of the area's growing population and economy, relieving congestion on local roads, providing for the incorporation of transit options, and promoting regional connectivity.

### 1.5.2 Other Area Projects

Nolte Road is being extended from its current terminus at Hickory Tree Road (CR 534) in an easterly direction as part of the Twin Lakes Phase 2A/2B development. Subsequent phases of the Twin Lakes development will include additional extensions of Nolte Road to the northeast

between Live Oak Lake and Sardine Lake and it will ultimately connect with US 192 (SR 500) to the north.

### 1.5.3 Additional Capacity Projects DOT, MPO, Local Projects

There are several roadway and other capital improvement projects identified in the Florida Department of Transportation's (FDOT) Five Year Work Program and Osceola County's Capital Improvement Worksheet for 2018 Budget Exercise for the Years 2018 through 2022 that are scheduled to occur within or near the study area. These projects are identified in Table 1-1.

Table 1-1  
Identified Roadway and Other Capital Improvement Projects

Roadway	From	To	Responsible Entity	Improvement
<b>US 192 (SR 500)</b>	West Arthur J. Gallagher Boulevard	East of Harmony Square Drive	FDOT	Resurfacing
<b>Canoe Creek Road (CR 523)</b>	Deer Run Road	US 192 (SR 500)	Osceola County	Reconstruction of existing two-lane rural roadway to a four-lane divided urban roadway with sidewalks and bike lanes
<b>Fanny Bass Slough Stormwater Improvements</b>	N/A	N/A	Osceola County	Stormwater conveyance and culvert improvements in the Fanny Bass Basin
<b>Hickory Tree Road (CR 534) Safety Upgrade</b>	Deer Run Road	US 192 (SR 500)	Osceola County	Study to determine the extent of improvements needed to bring the existing road and bridges in compliance with County standards
<b>Hickory Tree Road (CR 534)</b>	Hunting Lodge Road	US 192 (SR 500)	Osceola County	Reconstruction of existing two-lane rural roadway to a four-lane divided urban roadway with sidewalks and bike lanes
<b>Holopaw Conservation Area</b>	Florida Fish and Wildlife Conservation Commission (FWC)	Community of Harmony	Osceola County	Provide Florida National Scenic Trail (FNST) hikers with a connecting trail between FWC land and the Community of Harmony
<b>Lake Lizzie Roadway and Drainage Improvements</b>	US 192 (SR 500)	Pine Grove Road	Osceola County	Drainage conveyance improvements and outfall to the lake to address flooding issues

Roadway	From	To	Responsible Entity	Improvement
<b>Nolte Road Drainage to WPA Ditch</b>	Nolte Road	WPA Canal	Osceola County	Drainage improvements to existing drainage culverts that are located within the existing drainage ditch
<b>Old Canoe Creek Road</b>	Canoe Creek Road (CR 523)	850 feet east of Kissimmee Park Road	Osceola County	Reconstruction of existing two-lane rural roadway to a four-lane divided urban roadway with sidewalks
<b>Story Road and Hunting Lodge Drive</b>	Lake Gentry Canal	North of Story Road	Osceola County	Determine future intersection configuration and right-of-way needs to eliminate long sweeping curve on Hickory Tree Road (CR 534) west of Alligator Lake/Lake Gentry Canal

REFERENCE COPY

## **2. Project Need and Purpose**

The need and purpose for a project help establish the foundation for which the proposed alternatives will be evaluated. The need for a project identifies the transportation problem to be addressed. The purpose for a project addresses why the undertaking is being proposed and articulates the intended positive outcomes.

### **2.1 Need for Improvement**

The need for the project is to provide system linkage, provide regional connectivity and mobility, meet social and economic needs, provide additional transportation capacity, achieve consistency with transportation plans, provide multi-modal opportunities, and improve safety and evacuation support.

#### **2.1.1 System Linkage**

System linkage is defined as linking two or more existing transportation facilities, types of modal facilities, geographic areas, or regional traffic generators.

The FDOT has identified a network of transportation facilities that are important to the state's economy and mobility. This network is referred to as the Strategic Intermodal System (SIS). Florida's Turnpike, I-4, and SR 417 are designated SIS facilities.

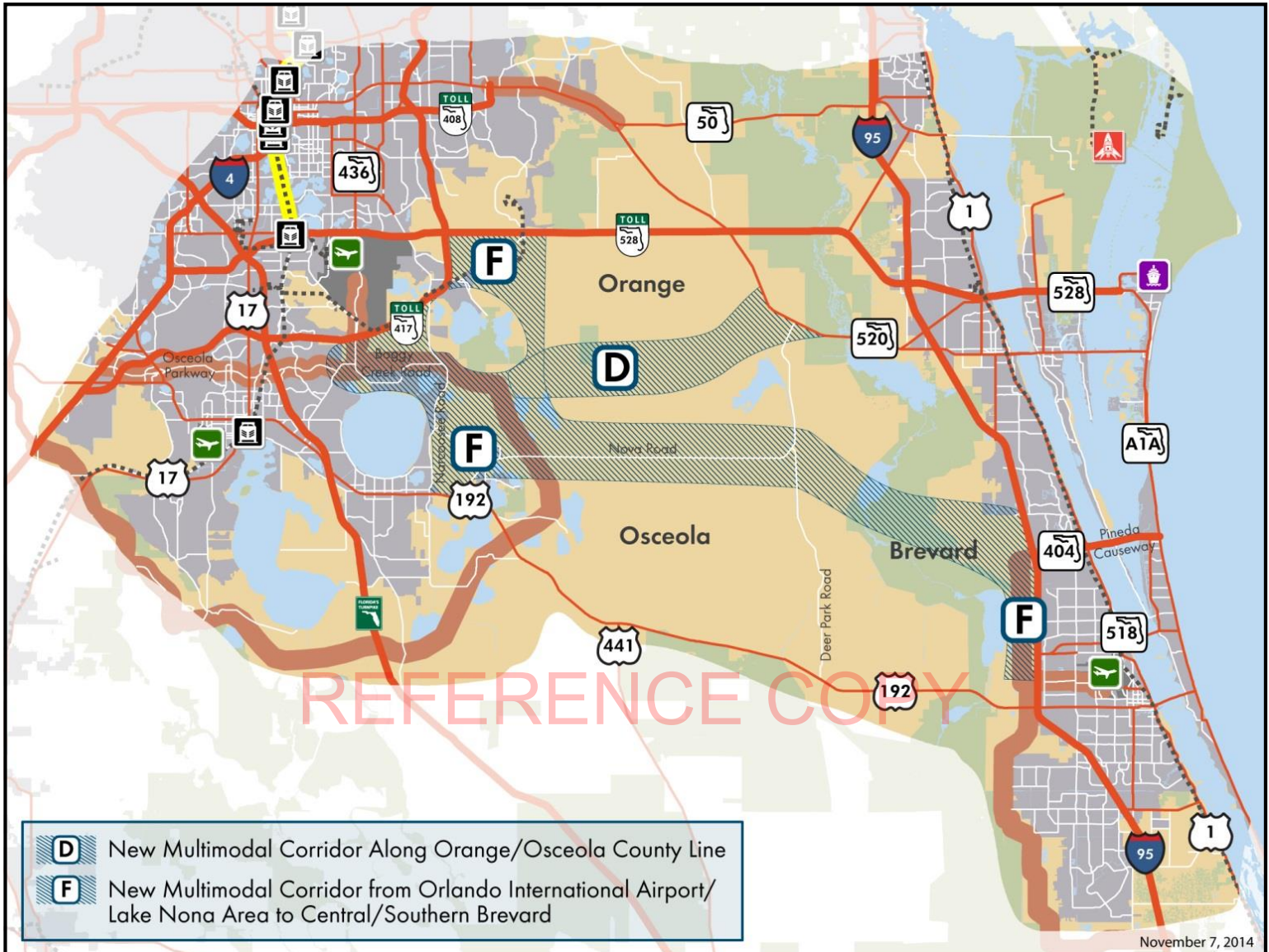
The Northeast Connector Expressway is part of a planned limited access, high-speed toll facility identified in the CFX 2040 Master Plan and the OCX Master Plan to serve Osceola County's urban growth area. When completed, the projects identified in the OCX Master Plan will provide system linkage with the designated SIS facilities (i.e., Florida's Turnpike, I-4, and SR 417).

In 2014, the East Central Florida Corridor Task Force submitted a report to Florida Governor Rick Scott that documented the evaluation and development of future transportation corridors serving established and emerging economic activity centers in portions of Brevard, Orange, and Osceola counties. The Task Force recommended 21 principles to help guide decisions about the future transportation corridors within the study area addressed by the Task Force. These guiding principles resulted in the identification of future transportation corridors. Figure 2-1 shows the East-West transportation corridors that were identified. This figure also shows the planned OCX Master Plan projects and Corridor F linking the Northeast Connector Expressway with I-95 in Brevard County.

#### **2.1.2 Regional Connectivity and Mobility**

Mobility is the movement of people and goods and the ability to meet transportation demands. Due to the anticipated population and employment growth in the study area, the proposed facility will play a critical role in accommodating travel demands and improving the movement of goods and people. The Northeast Connector Expressway will provide a connection to Florida's Turnpike and ultimately to I-4 via the proposed Southport Connector Expressway. The Northeast Connector Expressway will also provide a connection to SR 417 and the Orlando International Airport (OIA) via the proposed Osceola Parkway Extension Expressway.





### Potential Study Area for New Multimodal Corridor

- Potential Study Area for New Multimodal Corridor
- Planned Multimodal Improvements

### Existing Transportation Facilities

- Limited Access Facility
- Other State Highway
- Local Road
- SunRail
- Railroad
- Major Airport
- Cape Canaveral Spaceport
- Port Canaveral
- SunRail or Amtrak Station

### Other Features

- East Central Florida Corridor Study Area
- Managed Land
- Urbanized Area
- Airport Boundary
- Water Body
- County Boundary

0 5 10 Miles





### 2.1.3 Social and Economic Needs

The proposed facility would support the planned economic development within the study area consistent with the Osceola County Comprehensive Plan. Figure 2-2 - Development Map depicts recent planned and approved developments within the study area. Of note, Sunbridge is located in the northern portion of the study area, Harmony is located in the central portion of the study area, and Center Lake is located in the western portion of the study area. The Northeast Connector Expressway, in concert with the Poinciana Parkway Extension/I-4 Connector Expressway, the Southport Connector Expressway, and the Osceola Parkway Extension, is planned to meet the transportation needs of Osceola County.

### 2.1.4 Capacity Constraints

The proposed facility would relieve congestion on local roads by separating local and regional traffic.

### 2.1.5 Consistency with Transportation Plans

The Northeast Connector Expressway is identified in, and is consistent with, the MetroPlan Orlando (MPO) Long Range Transportation Plan (LRTP), the Osceola County Comprehensive Plan, the CFX 2040 Master Plan, and the OCX Master Plan. A more detailed discussion of planning consistency is contained in Section 3.5.10.

### 2.1.6 Multimodal Opportunities

CFX has established a multi-modal policy to fund or partner on multi-modal initiatives where revenue generated from the investment equals the project cost or where toll user benefits are equal to or exceed the project cost. In addition, Osceola County's Comprehensive Plan calls for an integrated, multi-modal transportation network. Opportunities to provide multi-modal improvements will be considered as part of the alternatives developed to address the need and purpose for this project.

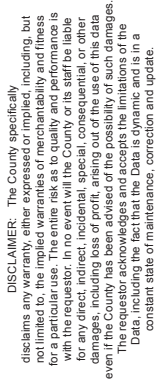
### 2.1.7 Safety and Evacuation Support

The Florida Division of Emergency Management has identified I-4, Florida's Turnpike, and SR 417 as significant evacuation routes in the region. Other evacuation routes within the study area are US 192 (SR 500) and Nova Road (CR 532). The Northeast Connector Expressway would provide a direct connection to Florida's Turnpike and indirectly to I-4 via the proposed Southport Connector Expressway and the proposed Poinciana Parkway/I-4 Connector Expressway. The Northeast Connector Expressway would also provide indirect connection to SR 417 via the proposed Osceola Parkway Extension. US 192 (SR 500) and Nova Road (CR 532) would connect to the Northeast Connector Expressway and enhance those two evacuation routes.

## 2.2 Purposes of the Proposed Project

The purposes of this proposed new limited-access facility include providing a connection from Florida's Turnpike to US 192 (SR 500) and the proposed Osceola Parkway Extension, enhancing the mobility of the area's growing population and economy, relieving congestion on local roads, providing for the incorporation of transit options, and promoting regional connectivity.

## I:\Project\Warehouse\StC\_Narcoossee Warehouse\Roads\OC\XNortheastConnector\Concept\Feasibility\MobilityStudy.mxd



### 3. Existing Conditions

This section addresses the existing conditions within the study area.

#### 3.1 Existing Road Network

The roadways evaluated are Florida's Turnpike, Canoe Creek Road (CR 523), Narcoossee Road (CR 15), Hickory Tree Road (CR 534), US 192 (SR 500), Old Melbourne Highway (CR 500A), and Nova Road (CR 532).

##### 3.1.1 Functional Classification

It is anticipated that the new facility - the Northeast Connector Expressway - will be classified as both a Rural Principal Arterial-Expressway and an Urban Principal Arterial-Expressway. The Rural Principal Arterial-Expressway limits extend from Florida's Turnpike to approximately one-half mile east of Hickory Tree Road (CR 534). The Urban Principal Arterial-Expressway limits extend from approximately one-half mile east of Hickory Tree Road (CR 534) to the Osceola/Orange County line.

Functional classifications for the existing major roadways within the project area are shown in Table 3-1.

##### 3.1.2 Access Classification

Osceola County utilizes the same Access Management Classification system as the FDOT, which is described below:

- Access Class 1 (e.g., Florida's Turnpike) is limited access, meaning direct property connections are not provided. Access is via interchanges which require justification. Interchange spacing is determined by the area type (i.e., rural, transitioning, or urbanized). The spacing is two miles in urbanized areas, three miles in transitioning areas, and six miles in rural areas.
- Access Class 3 (e.g., US 192 [SR 500]) is controlled access, meaning direct access to abutting land will be controlled to maximize the operation of the through traffic movement. Spacing for full median openings is 2,640 feet, spacing for directional median openings is 1,320 feet, and connection spacing is 660 feet (for a speed limit higher than 45 miles per hour [mph]) or 440 feet (for a speed limit equal to or less than 45 mph).
- Access Class 5 (e.g., Narcoossee Road [CR 15]) is controlled access with a restrictive median. Spacing for full median openings is 2,640 feet (for a speed limit higher than 45 mph) or 1,320 feet (for a speed limit equal to or less than 45 mph). Spacing for directional median openings is 660 feet and connection spacing is 440 feet (for a speed limit higher than 45 mph) or 245 feet (for a speed limit equal to or less than 45 mph).
- Access Class 6 (e.g., Hickory Tree Road [CR 534]) is controlled access; however, no restrictive median is provided so there are no dimensions for full and directional median openings. Signal spacing is 1,320 feet and connection spacing is 440 feet (for a speed limit more than 45 mph) or 245 feet (for a speed limit equal to or less than 45 mph).

Table 3-1  
Existing Roadway Functional Classification

Roadway		Functional Classification
From	To	
Florida's Turnpike		
Canoe Creek Service Plaza	Osceola County Urban Growth Boundary	Rural Principal Arterial-Expressway
Osceola County Urban Growth Boundary	Friars Cove Road	Rural Principal Arterial-Expressway
Friars Cove Road	Kissimmee Park Road	Rural Principal Arterial-Expressway
Canoe Creek Road (CR 523)		
Lake Cypress Road (SW of Turnpike)	Mildred Bass Road	Rural Major Collector
Mildred Bass Road		
Canoe Creek Road (CR 523)	Story Road	Local Road
Narcoossee Road (CR 15)		
US 192 (SR 500)	Rummell Road	Urban Principal Arterial-Other
Rummell Road	Boggy Creek Road	Urban Principal Arterial-Other
Boggy Creek Road	SR 417	Urban Principal Arterial-Other
Hickory Tree Road (CR 534)		
Rural Boundary	US 192 (SR 500)	Rural Major Collector
US 192 (SR 500)	Deer Run Road	Urban Major Collector
Deer Run Road	Nolte Road	Urban Major Collector
Nolte Road	US 192 (SR 500)	Urban Major Collector
US 192 (SR 500)		
Arthur J Gallagher Boulevard (Harmony High School)	Hickory Tree Road (CR 534)	Urban Principal Arterial-Other
Hickory Tree Road (CR 534)	Old Melbourne Highway (CR 500A)	Urban Principal Arterial-Other
Old Melbourne Highway (CR 500A)		
US 192 (SR 500)	Lake Conlin Road	Rural Major Collector
Nova Road (CR 532)		
US 192 (SR 500)	S State Hwy 13	Urban Minor Arterial

The access classifications for roadways within the study area are summarized in Table 3-2.



Table 3-2  
Existing Roadway Access Management Classification

Roadway		Access Management Classification
From	To	
Florida's Turnpike		
Canoe Creek Service Plaza	Osceola County Urban Growth Boundary	1
Osceola County Urban Growth Boundary	Friars Cove Road	1
Friars Cove Road	Kissimmee Park Road	1
Canoe Creek Road (CR 523)		
Lake Cypress Road (SW of Turnpike)	Mildred Bass Road	6
Mildred Bass Road		
Canoe Creek Road (CR 523)	Story Road	6
Narcoossee Road (CR 15)		
US 192 (SR 500)	Rummell Road	5
Rummell Road	Boggy Creek Road	5
Boggy Creek Road	SR 417	5
Hickory Tree Road (CR 534)		
Rural Boundary	US 192 (SR 500)	6
US 192 (SR 500)	Deer Run Road	6
Deer Run Road	Nolte Road	6
Nolte Road	US 192 (SR 500)	6
US 192 (SR 500)		
Arthur J Gallagher Boulevard (Harmony High School)	Hickory Tree Road (CR 534)	3
Hickory Tree Road (CR 534)	Old Melbourne Highway (CR 500A)	3
Old Melbourne Highway (CR 500A)		
US 192 (SR 500)	Lake Conlin Road	6
Nova Road (CR 532)		
US 192 (SR 500)	S State Hwy 13	6

## 3.2 Existing Roadway Characteristics

### 3.2.1 Typical Sections

The Northeast Connector Expressway is a planned future facility that will use a new alignment. Therefore, there is no existing typical section. The proposed typical section for the Northeast Connector Expressway is discussed in Section 6.6.

The number of lanes for the study area roadway segments is shown in Table 3-3.

Table 3-3  
Roadway Laneage

Roadway		Number of Lanes
From	To	
Florida's Turnpike		
Canoe Creek Service Plaza	Osceola County Urban Growth Boundary	4
Osceola County Urban Growth Boundary	Friars Cove Road	4
Friars Cove Road	Kissimmee Park Road	4
Canoe Creek Road (CR 523)		
Lake Cypress Road (SW of Turnpike)	Mildred Bass Road	2
Mildred Bass Road		
Canoe Creek Road (CR 523)	Story Road	2
Narcoossee Road (CR 15)		
US 192 (SR 500)	Rummell Road	6
Rummell Road	Boggy Creek Road	6
Boggy Creek Road	SR 417	6
Hickory Tree Road (CR 534)		
Rural Boundary	US 192 (SR 500)	2
US 192 (SR 500)	Deer Run Road	2
Deer Run Road	Nolte Road	2
Nolte Road	US 192 (SR 500)	2
US 192 (SR 500)		
Arthur J Gallagher Boulevard (Harmony High School)	Hickory Tree Road (CR 534)	4
Hickory Tree Road (CR 534)	Old Melbourne Highway (CR 500A)	4
Old Melbourne Highway (CR 500A)		
US 192 (SR 500)	Lake Conlin Road	2
Nova Road (CR 532)		
US 192 (SR 500)	S State Hwy 13	2

### 3.2.2 Design and Posted Speeds

The design and posted speeds for the major roadways in the study area are shown in Table 3-4. Where design speed is unknown, it has been estimated based on the characteristics of the existing typical section or at 5 mph higher than the posted speed limit.

Table 3-4  
Roadway Posted and Design Speed

Roadway		Posted Speed Limit (mph)	Design Speed (mph)
From	To		
Florida's Turnpike			
Canoe Creek Service Plaza	Osceola County Urban Growth Boundary	70	70
Osceola County Urban Growth Boundary	Friars Cove Road	70	70
Friars Cove Road	Kissimmee Park Road	70	70
Canoe Creek Road (CR 523)			
Lake Cypress Road (SW of Turnpike)	Mildred Bass Road	50	55 <sup>1</sup>
Mildred Bass Road			
Canoe Creek Road (CR 523)	Story Road	30	35 <sup>1</sup>
Narcoossee Road (CR 15)			
US 192 (SR 500)	East Lake Cove Boulevard	45	50 <sup>1</sup>
East Lake Cove Boulevard	Hancock Circle	45	50 <sup>1</sup>
Hancock Circle	Boggy Creek Road	40	40
Boggy Creek Road	SR 417	45	45 <sup>1</sup>
Hickory Tree Road (CR 534)			
Rural Boundary	US 192 (SR 500)	50	55 <sup>1</sup>
US 192 (SR 500)	Deer Run Road	50	55 <sup>1</sup>
Deer Run Road	Nolte Road	50	55 <sup>1</sup>
Nolte Road	US 192 (SR 500)	50	55 <sup>1</sup>
US 192 (SR 500)			
Arthur J Gallagher Boulevard (Harmony High School)	Hickory Tree Road (CR 534)	55	60 <sup>1</sup>
Hickory Tree Road (CR 534)	Old Melbourne Highway (CR 500A)	60	65 <sup>1</sup>
Old Melbourne Highway (CR 500A)			
US 192 (SR 500)	Lake Conlin Road	55	60 <sup>1</sup>
Nova Road (CR 532)			
US 192 (SR 500)	S State Hwy 13	55	60 <sup>1</sup>

<sup>1</sup> Design speed is estimated based on the characteristics of the existing typical section or at 5 mph above posted speed.

### 3.2.3 Right-of-Way

The right-of-way widths for the study area roadway segments are listed in Table 3-5.

Table 3-5  
Roadway Right-of-Way Width

Roadway		Right-of-Way Width (feet)
From	To	
Florida's Turnpike		
Canoe Creek Service Plaza	Osceola County Urban Growth Boundary	400
Osceola County Urban Growth Boundary	Friars Cove Road	400
Friars Cove Road	Kissimmee Park Road	400
Canoe Creek Road (CR 523)		
Lake Cypress Road (SW of Turnpike)	Mildred Bass Road	100
Mildred Bass Road		
Canoe Creek Road (CR 523)	Story Road	50
Narcoossee Road (CR 15)		
SR 417	Boggy Creek Road	100-120
Boggy Creek Road	Rummell Road	150-170
Rummell Road	US 192 (SR 500)	150
Hickory Tree Road (CR 534)		
US 192 (SR 500)	Nolte Road	100
Nolte Road	Deer Run Road	50
Deer Run Road	Rural Boundary	60
Rural Boundary	US 192 (SR 500)	60
US 192 (SR 500)		
Old Melbourne Highway (CR 500A)	Hickory Tree Road (CR 534)	200
Hickory Tree Road (CR 534)	Arthur J Gallagher Boulevard (Harmony High School)	200
Old Melbourne Highway (CR 500A)		
US 192 (SR 500)	Lake Conlin Road	100
Nova Road (CR 532)		
US 192 (SR 500)	S State Hwy 13	200

There is no existing right-of-way in the location of the proposed Northeast Connector Expressway new alignment corridors except at the crossroads.

#### 3.2.4 Pavement Conditions

The Northeast Connector Expressway is proposed as a new facility; therefore, there is no existing pavement for this facility. The pavement condition for the existing roadways within the study area is moderate to poor.



### 3.2.5 Horizontal Alignment

The Northeast Connector Expressway is proposed as a new facility; therefore, there is no existing horizontal alignment data for this facility.

### 3.2.6 Vertical Alignment

The Northeast Connector Expressway is proposed as a new facility; therefore, there is no existing vertical alignment data for this facility.

### 3.2.7 Intersections and Signalizations

An intersection and signalization inventory was conducted within the study area boundaries. There are no signalized intersections along Florida's Turnpike. Table 3-6 summarizes the major study area intersections and their type of control.

### 3.2.8 Lighting

The Northeast Connector Expressway is proposed as a new facility; therefore, there is no existing lighting for this facility.

## 3.3 Geotechnical Data

The geotechnical features most likely to impact potential corridors are organic soil (muck) deposits typically associated with wetlands and water crossings. In general, sand (Soil Units 1, 5, 9, 16, 22, 27, 34) with a seasonal high-water table (SHWT) from the ground surface to 3.5 feet deep are predominant. Some isolated areas are above the ground surface. A few well-drained sand areas (Soil Units 7, 43, 44) are present, which are characterized by an SHWT from 3.5 feet to greater than six-feet deep.

There are several wetlands within the study area, primarily around the lakes. The lakes include Lake Gentry, Alligator Lake, Pearl Lake, Lake Conlin, Buck Lake, Lake Center, Lake Joel, and Bullock Lake. The wetland soils are Soil Unit 40 - Samsula Muck and Soil Unit 15 - Hontoon Muck, which are characterized by a surface muck layer typically about 22 inches and 70 inches thick, respectively. The water crossings are Soil Unit 99 - Water. The thickness of the muck deposits at the lake or stream bottom are unknown.

Muck is highly compressible and can create excessive settlement of embankments constructed over them. Therefore, muck is typically removed and replaced with engineered sand fill during highway construction. Muck removal and replacement can create significant additional costs during construction. Shallow groundwater and standing water can also increase construction costs.

Table 3-6  
Intersection Summary

Intersection	Type	Intersection Control Type	Turn Lanes	Crosswalks
Canoe Creek Rd. (CR 523) and Lake Cypress Rd.	T	Stop Control Lake Cypress Rd.	No	No
Canoe Creek Rd. (CR 523) and Mildred Bass Rd.	T	Stop Control Mildred Bass Rd.	No	No
Mildred Bass Rd. and Story Rd.	T	Stop Control Mildred Bass Rd.	No	No
Hickory Tree Rd. (CR 534) and US 192 (SR 500)	T	Stop Control Hickory Tree Rd. (CR 534)	NBL, SBL, SBR, EBL, EBR	No
Hickory Tree Rd. (CR 534) and Deer Run Rd.	T	Signalized	No	All Approaches
Hickory Tree Rd. (CR 534) and Nolte Rd.	Plus	Signalized	NBL, SBR, EBL, EBR	All Approaches
Narcoossee Rd. (CR 15) and US 192 (SR 500)	Plus	Signalized	NBL, NBR, SBL, SBR, EBL, EBR, WBL, WBR	All Approaches
Narcoossee Rd. (CR 15) and Rummell Rd.	Plus	Signalized	NBL, NBR, SBL, EBL, EBR, WBL, WBR	All Approaches
Narcoossee Rd. (CR 15) and Boggy Creek Rd.	T	Signalized	NBL, SBR, EBL, EBR	NB & EB Approaches
Narcoossee Rd. (CR 15) and SR 417 NB Ramp	Plus	Signalized	NBR, SBL, EBL, EBR	NB Off Ramp & NB On Ramp
Narcoossee Rd. (CR 15) and SR 417 SB Ramp	Plus	Signalized	NBL, SBR, WBL, WBR	SB Off Ramp & SB On Ramp
US 192 (SR 500) and Old Melbourne Highway (CR 500A)	T	Stop Control Old Melbourne Highway (CR 500A)	NBL, NBR, SBL, WBL, WBR	No
US 192 (SR 500) and Arthur J Gallagher Blvd. (Harmony Highschool)	T	Signalized	NBL, SBR, WBL, WBR	No
Old Melbourne Highway (CR 500A) and Lake Conlin Rd.	T	Un-controlled	No	No
Nova Rd. (CR 532) and US 192 (SR 500)	T	Nova Road (CR 532)	EBL, WBR	No
Nova Rd. (CR 532) and South State Highway 13	Plus	Un-controlled	No	No

In addition, relic sinkholes can be present within Central Florida wetlands and lakes. These relic features can be filled with organic soils more than 100-feet deep and pose a significant geotechnical challenge to highway construction. These relic sinkholes have no surface expression and can only be identified by manual probes and soil borings. During the planning phase, the risk of encountering deep muck deposits can be reduced by avoiding wetland and water crossings, when possible.

### 3.4 Natural Environment

#### 3.4.1 Water Resources

##### 3.4.1.1 Surface Waters

The US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Geographic Information System (GIS) database was used to identify wetlands and surface waters in the study area. Surface waters within the study area were defined as lake or riverine systems generally comprised of open water with little vegetation limited to littoral zones. These areas typically consist of both named and unnamed lakes. Table 3-7 summarizes the surface waters within the study area.

Table 3-7  
Summary of Surface Waters within the Study Area

Description	Area (ac)	% of Study Area
Freshwater Emergent Wetland	164	23%
Freshwater Forested/Shrub Wetland	523	72%
Freshwater Pond	21.5	3.0%
Lake	11.1	1.5%
Riverine	3.7	0.5%

Source: USFWS NWI, May 2016

Water quality is also protected under the Clean Water Act of 1972, 33 United States Code (U.S.C.) Section (§) 1251 et seq. Potential environmental effects of the proposed project include impacts on water quality. To determine poor water quality within the study area, the GIS analysis included a review of the verified Impaired Waters in the state of Florida. These are water bodies that fail to attain any of its designated uses and/or meet the minimum criteria for surface waters established in the Surface Water Quality Standards (Chapter 62-302, Florida Administrative Code [F.A.C.]) and the Impaired Waters Rule (Chapter 62-303, F.A.C.).

Table 3-8 summarizes the impaired waters within the study area. The project includes following watersheds: St. Cloud Canal (WBID 3173B), Lake Tohopekaliga (WBID 3173C), Lake Center Outlet (WBID 3174F), Alligator Lake Outlet (WBID 3176B), Lake Gentry Outlet (3177B), S-36A (WBID 3179), and South Port Canal (WBID 3180B). Lake Tohopekaliga is verified impaired per FDEP 2017 Group 4 Final List for nutrients (Macrophytes and Total Phosphorus). South Port Canal discharges directly into Lake Cypress which has established TMDL Criteria to control Total Nitrogen and Total Phosphorus, and the entire project corridor is located within the Lake Okeechobee BMAP which is aimed to control Total Phosphorus.

Table 3-8  
Summary of Impaired Waters

Description	Name	Area (ac)	% of Study Area
Impaired Waters	Lake Tohopekaliga (WBID 3173C)	143.74	4.5%

Source: FDEP, 2014

#### 3.4.1.2 Existing Drainage

The study area includes a portion of the eastern chain of lakes, extending from Lake Myrtle to the north and Lake Gentry to the south, in the upper basin of the Kissimmee River watershed within the South Florida Water Management District (SFWMD). The region has a relatively flat topography and a high surface water table. The area is characterized by large lakes, gently rolling hills, agricultural lowlands, and forested wetlands.

Historically, the water bodies in the region had a wide-reaching floodplain and prolonged flood duration. In the late 1960s, the US Army Corps of Engineers (USACE) installed flood control measures to lower the surface water table and reduce the risk of inundation during heavy rains. As part of this effort, many of the waterbodies in the area of interest are hydraulically connected by major drainage canals. Canals C-30, C-32C, C-33, and C-34 are equipped with pump stations used to regulate lake levels in Lakes Gentry, Alligator, Center, Coon, Trout, Lizzie, Brick, Joel, Myrtle, and Preston, according to a stage schedule and real-time monitoring data.

Where the proposed corridor alternatives are expected to traverse major drainage canals owned by SFWMD, right-of-way permits from the SFWMD will need to be obtained to demonstrate the project does not adversely affect the existing conveyance. Canal crossing criteria are outlined in the SFWMD Right-of-Way Criteria Manual for Use of Works or Lands of the District. Canals C-33, C-34, and C-32C are subject to navigation requirements of the US Coast Guard, and a permit may be required. Canals C-33 and C-34 are Federal Emergency Management Agency (FEMA) regulated floodways, and any potential development will require a FEMA No-Rise certification to demonstrate no impacts to the 100-year flood elevations along the floodway.

The entire project area is in the Osceola County jurisdiction for floodplain impacts as well as SFWMD and FDOT District 5 jurisdictions for stormwater management. The entire project area is in the Lake Okeechobee Basin Management Action Plan (BMAP) and SFWMD will require the regulation of total phosphorus (TP) discharge. Additional protective measures, such as pollutant loading analysis and additional 50% water quality treatment volume, will be reviewed to comply with Lake Okeechobee BMAP criteria.

The Florida Department of Revenue's state parcel information identifies the lakes owned by the state of Florida. Construction within sovereign submerged lands requires authorization from the FDEP.

#### 3.4.1.3 Floodplains

The 2013 FEMA flood map identifies the general shape of the 100-year floodplains in the area of interest with flood zone type designations AE and A. Approximately 33,200 acres of the 55,300-acre project area (60%) are classified as a Zone A or Zone AE FEMA floodplain. The Zone AE



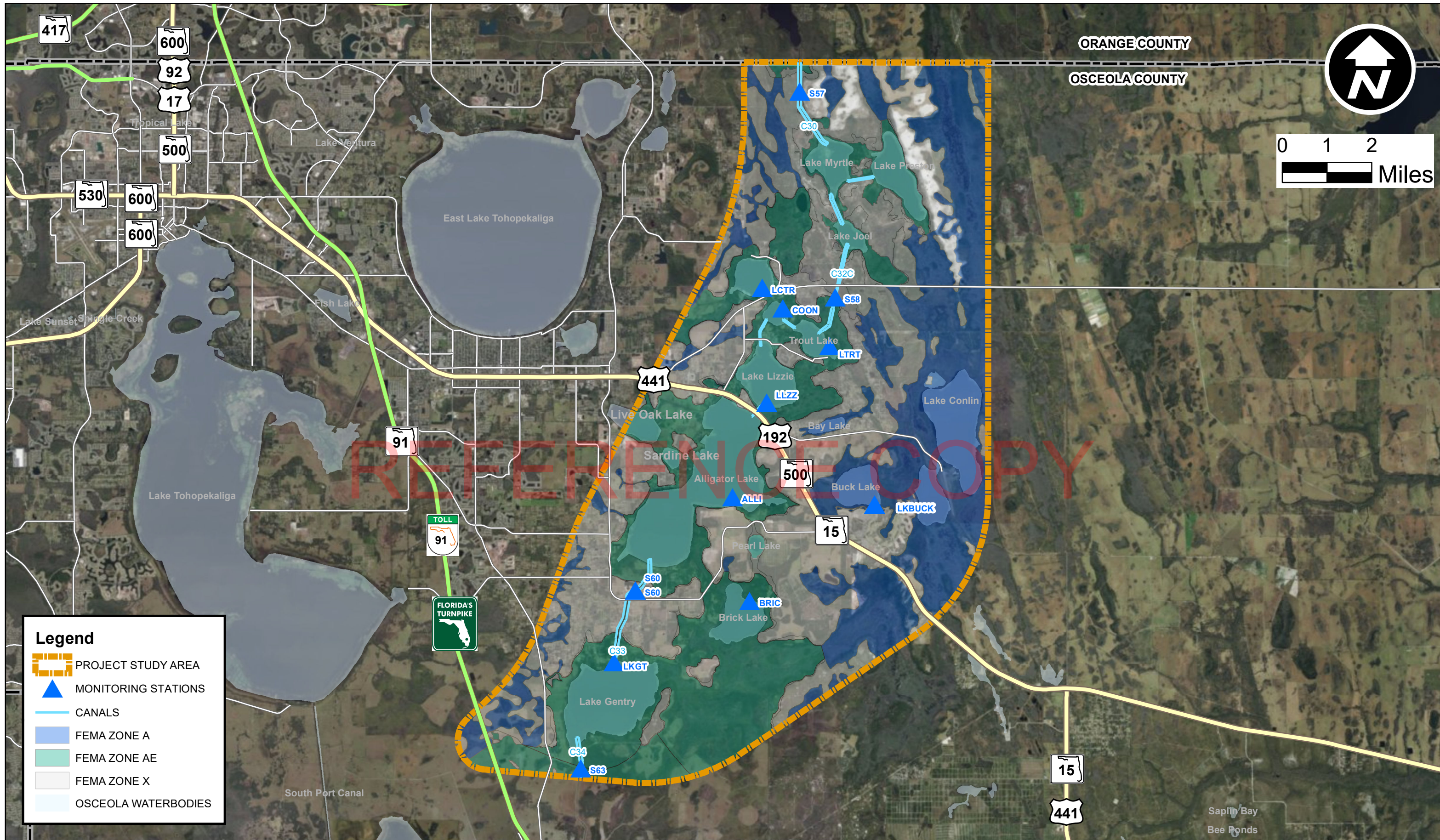
designations have established Base Flood Elevations (BFEs) and are located in the major water bodies. The Zone A designations do not have established BFEs and are located in the tributaries and wetlands outside of the major water bodies. Based on a preliminary review of BFEs (where available), historical aerial imagery, permit data, Natural Resources Conservation Service (NRCS) soils inventory, United States Geological Survey (USGS) Quad Maps, SFWMD Monitoring Stations (wells and surface waters), and 2016 Osceola County Light Detection and Ranging (LiDAR), the floodplain depths in this area range between 0.5 and 10 feet from the SHWT to the BFEs.

In the 2013 Osceola County Flood Insurance Study (FIS), FEMA published BFEs and flood-risk data for 14 water bodies within the area of interest. Detailed methods were used to evaluate 13 of the 14 water bodies where anticipated development prompted a higher priority of accuracy. Buck Lake was evaluated using approximate methods because the FEMA FIS elevations (100-year elevation of 104.3 feet) are significantly different from the surrounding elevations (~70 feet NAVD).

There are 12 monitoring stations in the area of interest with daily stage data available through the SFWMD ArcHydro database. For each station, the annual daily peak stage was analyzed for the period of record using the USACE Hydrologic Engineering Center's Statistical Software Package (HEC-SSP). The software creates the generalized frequency curve and the expected stage associated with each probability event. The 10 percent annual chance is an event expected to occur once in 10 years, the two percent annual chance is a 50-year event, the one percent annual chance is a 100-year event, and the 0.2 percent annual chance is a 500-year event.

Figure 3-1 shows the location of the named water bodies, major canals, FEMA flood zones, and surface water monitoring stations within the study area. Table 3-9 provides the FEMA published BFEs and the results of the HEC-SSP analysis on the stage data for the water bodies in the study area.





**Legend**

- PROJECT STUDY AREA
- MONITORING STATIONS
- CANALS
- FEMA ZONE A
- FEMA ZONE AE
- FEMA ZONE X
- OSCEOLA WATERBODIES



Table 3-9  
Summary of Base Flood Elevations

Location	Source	Peak Stages (feet NAVD88)			
		10 percent annual chance	2 percent annual chance	1 percent annual chance	0.2 percent annual chance
Alligator Lake	SFWMD Monitoring Station <sup>1</sup> – ALLI	63.5	63.5	63.5	63.6
	2013 FEMA FIS <sup>2</sup>	64.4	65.2	65.5	66.1
Brick Lake	SFWMD Monitoring Station <sup>1</sup> – BRIC	64.7	65.5	65.8	66.5
	2013 FEMA FIS <sup>2</sup>	64.5	65.2	65.5	66.2
Buck Lake	SFWMD Monitoring Station <sup>1</sup> – LKBUCK	70.4	71.4	72.0	73.8
	2013 FEMA FIS <sup>3</sup>	N/A	N/A	104.3	107.5
Canal C-30	SFWMD Monitoring Station <sup>1</sup> – S-57	60.8	61.5	61.9	62.8
Canal C-32C	SFWMD Monitoring Station <sup>1</sup> – S-58	63.7	65.6	66.4	68.3
Canal C-33	SFWMD Monitoring Station <sup>1</sup> – S-60	63.2	63.6	63.8	64.3
Canal C-34	SFWMD Monitoring Station <sup>1</sup> – S-63	57.1	57.8	58.2	59.4
Coon Lake	SFWMD Monitoring Station <sup>1</sup> – COON	63.8	64.3	64.4	64.7
	2013 FEMA FIS <sup>2</sup>	64.5	65.3	65.6	66.2
Lake Center	SFWMD Monitoring Station <sup>1</sup> – LCTR	63.8	64.1	64.2	64.5
	2013 FEMA FIS <sup>2</sup>	64.6	65.4	65.7	66.3
Lake Gentry	SFWMD Monitoring Station <sup>1</sup> – LKGT	61.1	61.5	61.7	62.2
	2013 FEMA FIS <sup>2</sup>	64.3	65.4	65.8	66.7
Lake Lizzie	SFWMD Monitoring Station <sup>1</sup> – LLZZ	63.7	64.0	64.0	64.2
	2013 FEMA FIS <sup>2</sup>	64.4	65.2	65.6	66.1
Trout Lake	SFWMD Monitoring Station <sup>1</sup> – LTRT	63.8	64.2	64.3	64.6
	2013 FEMA FIS <sup>2</sup>	64.5	65.3	65.6	66.2
Lake Joel	2013 FEMA FIS <sup>2</sup>	62.1	62.9	63.2	64.0
Lake Myrtle	2013 FEMA FIS <sup>2</sup>	62.1	62.9	63.2	64.0
Live Oak Lake	2013 FEMA FIS <sup>2</sup>	64.4	69.2	65.6	66.1
Pearl Lake	2013 FEMA FIS <sup>2</sup>	64.5	65.2	65.5	66.2
Sardine Lake	2013 FEMA FIS <sup>2</sup>	64.4	65.2	65.6	66.1

<sup>1</sup>Elevations were converted from NGVD29. Conversion used is -1.00 to NAVD88 datum.

<sup>2</sup>FEMA evaluation studied by detailed methods.

<sup>3</sup>FEMA evaluation studied by approximate methods.

#### 3.4.1.4 Groundwater

Groundwater hydrology in the study area is defined by the nature and relationship of the three sedimentary layers typical of Central Florida geology. The deepest, or basement, layer, is a massive cavernous limestone formation known as the Floridan aquifer. The Floridan aquifer limestone is overlain by a silty or clayey sand, clay, phosphate, and limestone aquitard (or flow-retarding layer) ranging in thickness from nearly absent to greater than 100 feet and locally referred to as the Hawthorn formation. The Hawthorn formation is in turn overlain by a 40 to 70-foot thick surficial layer of sand, bearing the water table aquifer. The water table in the study area is typically less than five feet below ground surface. Recharge of the Floridan aquifer from the overlying water table aquifer is determined by the water-transmitting capacity of the Hawthorn formation. The USGS Map entitled “Recharge and Discharge Areas of the Floridan Aquifer in the St. Johns River Water Management District (SJRWMD) and Vicinity, Florida” (USGS, 1984) indicates the study area is characterized by low to moderate recharge, indicating that the Hawthorn formation is effectively limiting recharge of the Floridan aquifer. According to the Florida Geological Survey map entitled “Upper Florida Aquifer Potentiometric Surface” (September 2015) the potentiometric surface of the Floridan aquifer ranges from about +40 feet to +50 feet in the study area. Since water table elevations range from +65 to +80 feet, the effective separation of the Floridan and water table aquifers is further confirmed. The competence and consistency of the Hawthorn formation is also the reason there is a low probability of sinkhole formation in the study area.

#### 3.4.2 Wetlands and Hydric Soils

The NWI database shows several large wetland communities, classified as freshwater emergent or freshwater forested, within the study area, as shown on Figure 3-2. These wetland classifications are based on substrate material, vegetation, and flooding regime and match the regulatory definition utilized by the US Environmental Protection Agency (USEPA) and USACE for administering the permitting program under Section 404 of the Clean Water Act which states, “Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

Wetlands within the study area are primarily comprised of large forested systems making up linear sloughs dominated by cypress (*Taxodium* sp.) within the interior and transitioning into a mixture of hardwoods and pines through the exteriors and riparian areas. While field reviews sufficient to assess the qualitative aspects of wetlands within the study area were not conducted, wetlands within the eastern portions of the study area were assumed to be generally of higher quality than those in the western portion. This is primarily due to size, adjacent land uses, proximity to developed areas/upland buffers, wildlife utilization/documentation through literature reviews and available GIS data, and connectivity to regionally significant systems, such as the Econlockhatchee River system. Table 3-10 summarizes the wetlands within the study area.







Table 3-10  
Summary of Wetlands within the Study Area

Description	Area (acres)	% of Study Area
Freshwater Emergent Wetland	6,684	9
Freshwater Forested/Shrub Wetland	16,023	22

### 3.4.3 Soil Classifications

The study area is within the mid-peninsular geomorphic zone, which is characterized as having discontinuous highlands forming sub-parallel ridges separated by broad valleys that roughly parallel the coast (White, 1970). More specifically, it is within the Osceola Plain (Scott, 1978; White, 1970). The area's surface lithology consists of medium fine sands and silts (Scott, 1978). Geologically, it is underlain by undifferentiated sediments of the Pleistocene and Holocene and the beach ridge and dune formation (Scott, 2001; Scott et al., 2001). Elevation of the project's Area of Potential Effect (APE) is 18 to 24 meters (m) (60-80 feet) above mean sea level.

The US Department of Agriculture (USDA) soil survey indicates that there are five soil associations of primary focus (Readle, 1979). The Immokalee-Pomello-Myakka and Myakka-Tavares-Immokalee are nearly level to gently sloping, moderately well and poorly drained soils of the low ridges, knolls, and flatwoods. In the areas of Immokalee and Myakka sands, the native vegetation consists of slash pine and longleaf pine with an understory of saw palmetto, pineland threeawn, gallberry, and running oak. The Pomello soils support sand live oak and dwarf live oak with saw palmetto and scattered longleaf and slash pine. In the depressions and poorly defined drainageways, baldcypress, sweetgum, and loblolly bay predominate, with a wide variety of grasses and sedges. The Tavares soils support turkey oak, live oak, slash pine, and longleaf pine, with an understory of creeping bluestem, lopsided indiagrass, pineland threeawn, and grassleaf goldaster. The Smyrna-Myakka-Immokalee soil association consists of nearly level poorly drained sandy soils in the flatwoods. The Basinger-Placid-Samsula soil association is nearly level, poorly and very poorly drained sandy soils of the swamps, marshes, and very wet areas. The Hontoon-Samsula association is made up of nearly level, very poorly drained organic soils. Within the swamps, cypress, sweetgum, bay, blackgum, red maple, and swamp ash occur, with an understory of waxmyrtle, greenbrier, blackberry, titi, and osmunda fern. The marshes support maidencane, pickerelweed, bulltongue, lilies, and sawgrass. The specific soil types, and their characteristics, found within the study area are listed in Table 3-11 (Readle, 1979; USDA, 2015).

Table 3-11  
Soil Classifications

Soil Type	Drainage	Environmental Setting
Adamsville sand	Somewhat poor	Narrow ridges adjacent to and slightly higher than sloughs, marshes, lakes, and on low knolls in the flatwoods
Arents	Poor	Fills and rises on marine terraces on coastal plains
Basinger fine sand	Poor	Low broad flats and sloughs in the flatwoods
Basinger fine sand, depressional	Poor	Shallow depressions and poorly defined drainageways in the flatwoods
Candler sand, 0-5% slopes	Excessive	Uplands
Cassia fine sand	Somewhat poor	Low ridges in the flatwoods
Hontoon Muck	Very poor	Depressional areas and in fresh water marshes and swamps
Immokalee fine sand	Poor	Broad flatwoods
Myakka fine sand	Poor	Broad flatwoods
Narcoossee fine sand	Moderately well	Low ridges and knolls in the flatwoods
Ona fine sand	Poor	Broad, flat areas in the flatwoods between swamps and marshes or in long, narrow bands bordering depressions and drainageways
Paola sand, 0-5%	Excessive	Upland ridgetops and side slopes and on low ridges and knolls in the flatwoods
Placid fine sand, depressional	Very poor	Low, wet depressions and swamps
Pomello fine sand, 0-5% slopes	Moderately well	Transitional areas between the high sand uplands and the flatwoods, on slight knolls, and low ridges throughout the flatwoods
Samsula muck	Very poor	Freshwater marshes and swamps
Smyrna fine sand	Poor	Broad, flat areas in the flatwoods
St. Lucie fine sand, 0-5% slopes	Excessive	Narrow, discontinuous ridges in the sandy uplands and flatwoods
Tavares fine sand, 0-5% slopes	Moderately well	Low ridges in the flatwoods

The soils support different vegetative regimes, which in turn provide habitats for the local animal population, and thus provide essential food resources. These soils have variable suitability for openland, woodland, and wetland habitats. The habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses, legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite quail, dove, meadowlark, field sparrow, cottontail, and red fox. Candler, Immokalee, Myakka, Ona, Smyrna, and Tavares soils are rated as fair for openland wildlife habitat. Woodland wildlife habitat includes areas of deciduous plants or coniferous plants, or both, and associated grasses, legumes, and wild herbaceous plants. The wildlife attracted to these areas include turkey, thrushes, woodpeckers, squirrels, gray fox,

raccoon, and deer. Adamsville, Candler, Immokalee, Myakka, Narcoossee, Ona, Smyrna, and Tavares soils are rated fair for this type of habitat. The habitat for wetland wildlife includes areas of open, marshy, or swampy shallow water areas. Wildlife in these areas include ducks, egrets, herons, alligators, and otter. The depressional and muck soils are well suited for wetland habitat; the Ona and Smyrna fine sands are rated fair (Readle, 1979).

#### 3.4.4 Prime and Unique Farmlands

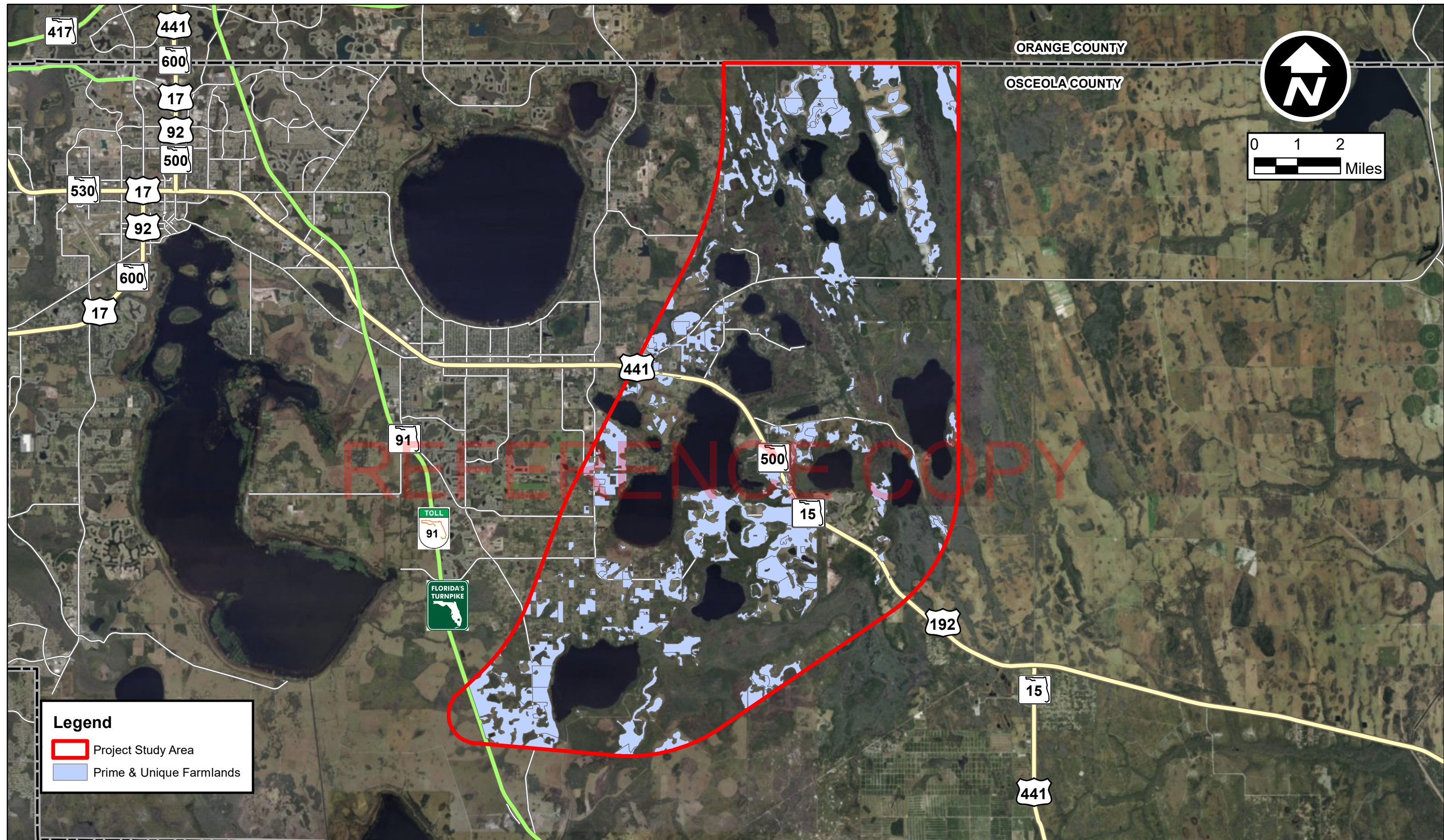
A review of GIS data published by the NRCS was performed to identify any Prime and Unique Farmlands within the study area. The results of the review are included below in Table 3-12. Prime and Unique Farmlands are shown on Figure 3-3.

Table 3-12  
Summary of Prime and Unique Farmlands

Name	Area (acres)	% of Study Area
Abandoned Groves	20	>1
Aquaculture	2	>1
Citrus Groves	2,722	4
Fallow Crop Land	1	>1
Field Crops	26	>1
Horse Farms	66	>1
Improved Pastures	4,075	6
Ornamentals	30	>1
Other Groves	6	>1
Poultry Feeding Operations	10	>1
Tree Nurseries	31	>1
Unimproved Pastures	2,420	3
Woodland Pastures	2,148	3

Source: NRCS, 2014.







### 3.4.5 Priority Habitat

Priority habitat was originally mapped by the Florida Natural Areas Inventory (FNAI) to inform the Florida Forever land acquisition program. The data layer contains 14 natural community types that are under-represented on existing conservation lands, including scrub, sandhill, sandhill upland lakes, pine flatwoods, and dry prairie. These natural communities are prioritized by a combination of their heritage global status rank, landscape context, and FNAI Potential Natural Areas. Priority 1 (highest) areas are distributed throughout the study area, but they are concentrated around Lake Lizzie and Trout Lake, the western portion of Lake X Ranch, and strand wetlands near Lake Myrtle and Lake Preston.

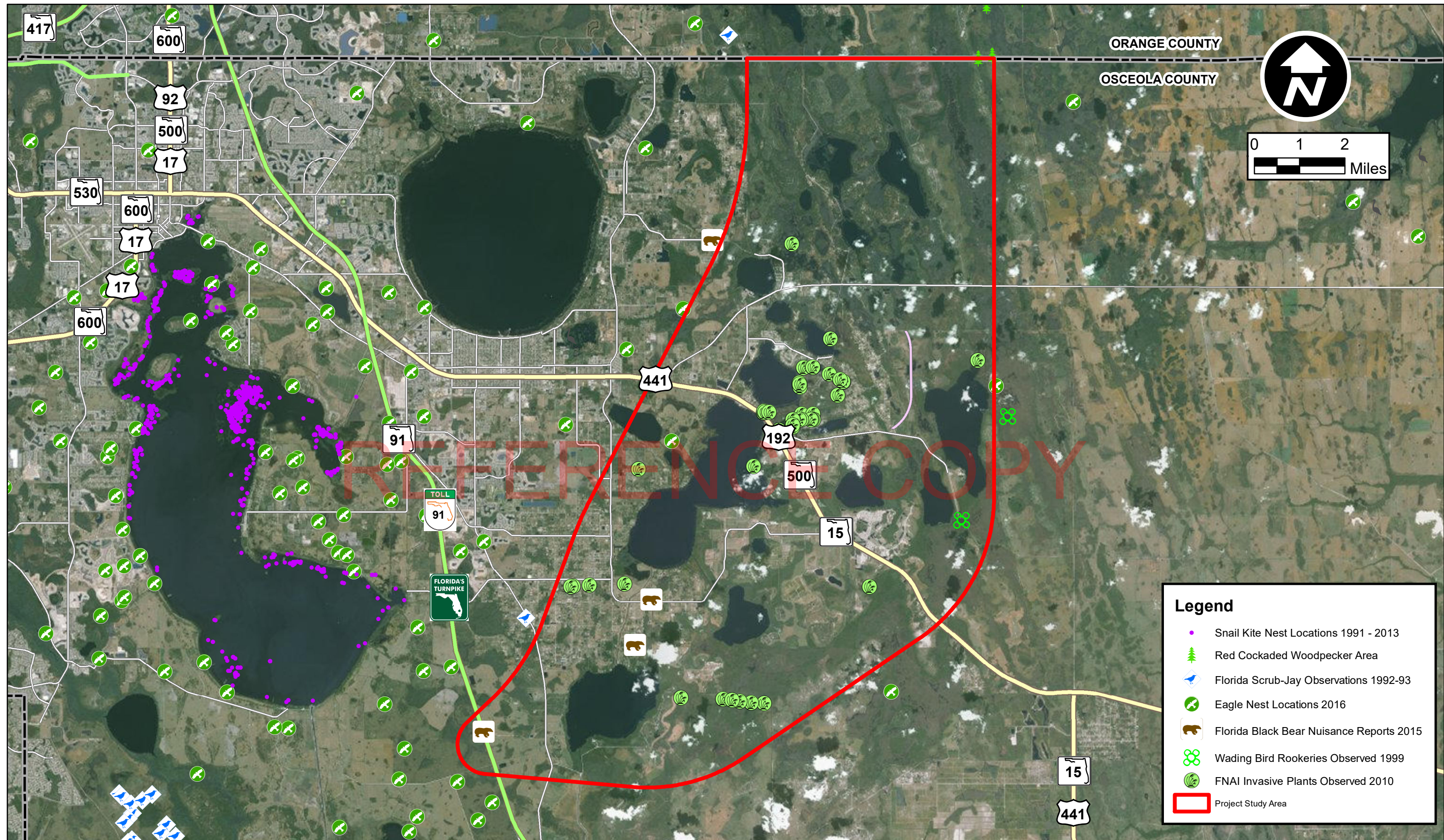
### 3.4.6 Threatened or Endangered Species

A review of available GIS data and published information from both the USFWS and FWC was performed to identify any potential for threatened or endangered species to occur within the study area, as shown on Figure 3-4. This review also considered certain environmentally sensitive resources like consultation areas, critical habitats, and essential fish habitats.

Several federal and state listed species have the potential to occur within the study area. The entire study area is located within consultation areas for the federally threatened Audubon's crested caracara, federally endangered Everglade snail kite, federally endangered Florida grasshopper sparrow, Lake Wales Ridge plants, federally endangered red-cockaded woodpecker, and the federally threatened Florida scrub-jay. The study area is not located within critical habitat for federally listed species and does not contain essential fish habitats.

Three federally protected bald eagle nests are located in the study area near Sardine Lake, Lake Conlin, and the Econlockhatchee River. A colony of red-cockaded woodpeckers is located within the TM Econ Mitigation Bank. A wading bird rookery historically occurred within the Lake X Mitigation Bank. Seven wood stork nesting colony core foraging areas fall within the study area. Additionally, Florida scrub-jays historically occurred just outside of and may occur within the study area because similarly contiguous "scrub-jay habitats" exist within the study area. These "scrub-jay habitats" are characterized by permeable soils with drought-tolerant scrub-oak species and other upland habitats and may be used by state threatened gopher tortoises. The prairie habitats may be used by state threatened Florida burrowing owls. Wetlands and lakes may be used as foraging or nesting sites by various wading birds, including the Everglade snail kite, state threatened Florida sandhill crane, and little blue heron. Most of the study area may provide habitats for the federally threatened eastern indigo snake and state threatened Sherman's fox squirrel.







### 3.4.7 Essential Fish Habitat

The study area does not contain essential fish habitats. Essential fish habitats will be analyzed further and addressed during the subsequent Project Development and Environment (PD&E) Study.

### 3.4.8 Conservation Areas

For purposes of this assessment, conservation areas included private wetland mitigation banks and other protected lands, including those listed below.

- Areas of critical concern
- Conservation Lands
- Existing trails
- Florida managed areas
- Florida Forever Lands (FFL)
- Greenways project
- Hiking trail opportunities
- Park boundaries
- Scenic byways
- State parks
- County parks

The FNAI GIS database depicts several park and recreational lands within the study area (see Figure 3-5): Isle of Pine Preserve, Lake Lizzie Conservation Area, county boat ramps and parks, and wetland mitigation areas, such as TM Econ and Lake X Ranch. The study area also contains Florida Forever Lands and priority habitat, including Big Bend Swamp/Holopaw Ranch Florida Forever Lands. These Florida Forever Lands serve as a corridor between Triple N Wildlife Management Area (WMA) and Three Lakes WMA in Osceola County, which are located south of the project corridor. The WMAs will not be impacted by the proposed project. The study area does not contain any Areas of Critical State Concern, state parks, WMAs, or Florida Scenic Highways and Byways. Table 3-13 summarizes the conservation lands within the study area.



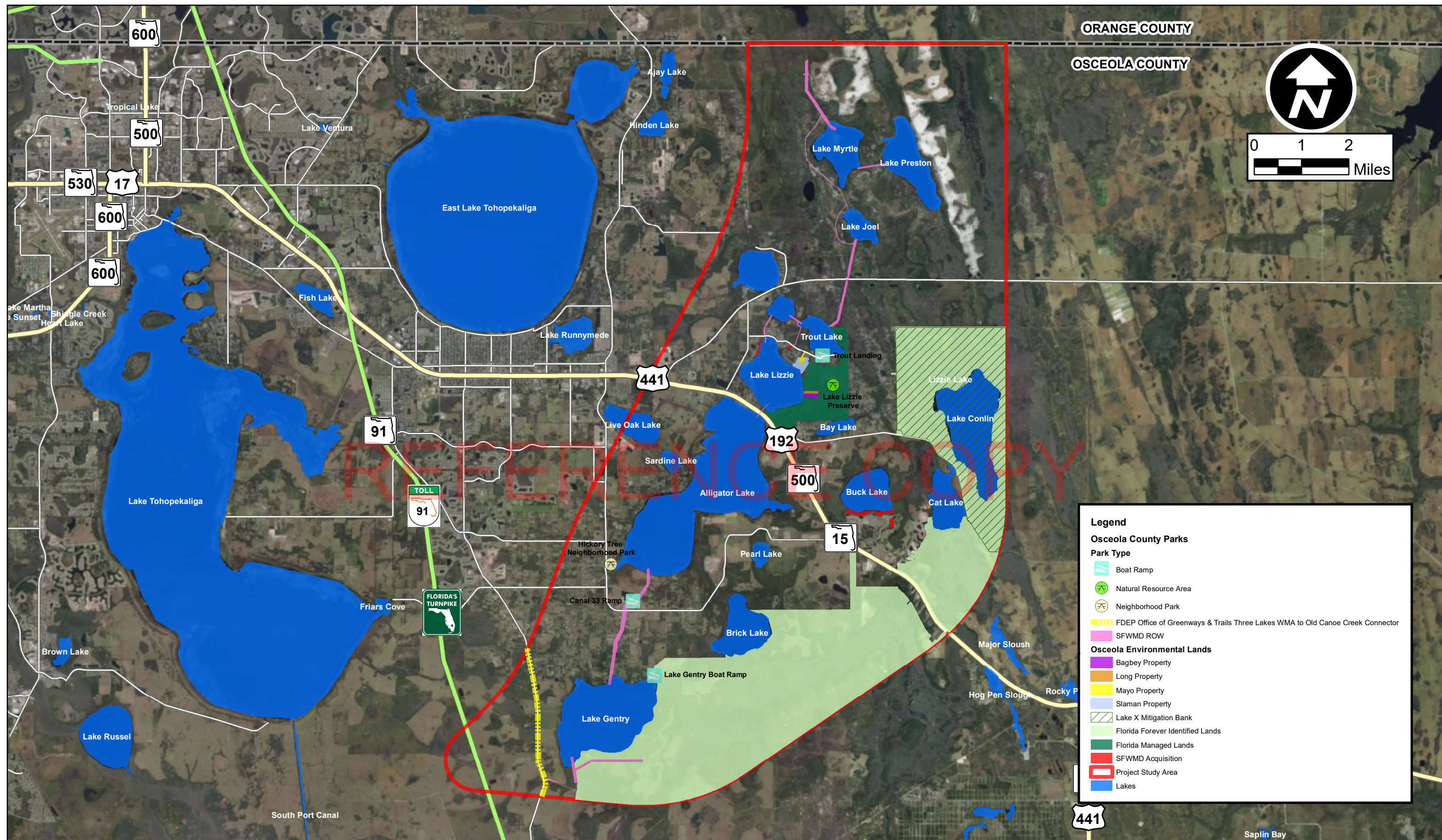




Table 3-13  
Summary of Conservation Lands within the Study Area

Resource	Description	Area (acres)	% of Study Area
Florida Forever	Big Bend Swamp/Holopaw Ranch	10,398	14
	Lake X	3,515	5
Florida Managed Areas	Lake Lizzie Conservation Area	1,077	1
Greenways & Trails	Three Lakes WMA to Old Creek Rd.	8	<1
County Environmental Lands	Bagbey Property	15	<1
	Long Property	5	<1
	Mayo Property	5	<1
	Slaman Property	32	<1
County Parks	Hickory Tree Neighborhood Park	1	<1
	Trout Landing Boat Ramp	--	--
	Canal 33 Ramp	--	--
	Lake Gentry Boat Ramp	--	--
SFWMD Right-of-way	C&SF Project	415	<1
SFWMD Acquisition	Regulatory Mitigation	64	<1

Source: FDEP, 2017; FNAI, 2017; SFWMD, 2014, 2017

#### 3.4.9 Mitigation Banks

Three mitigation banks are located within the project area: TM Econ Orange County; TM Econ Phases 1, 2, and 3; and Lake X Ranch. The most prominent would be Lake X Ranch, which surrounds Lake Conlin and encompasses approximately seven percent of the study area. The TM Econ Mitigation Bank areas account for a fraction of the study area near the Osceola/Orange County line. Table 3-14 summarizes the mitigation banks in the study area.

Table 3-14  
Summary of Mitigation Banks within the Study Area

Resource	Description	Area (acres)	% of Study Area
Mitigation Banks	TM Econ Orange County	1	<1
	TM Econ Phases 1, 2, and 3	1	<1
	Lake X Ranch	4,891	7

#### 3.4.10 Prescribed Burn Areas

Historically, many upland habitats in Florida were formed and maintained by periodic fires often caused by lightning. These upland habitats came to depend on periodic fires to produce and synchronize flowering and improve seed germination of representative plants while suppressing undesirable plants that may affect the natural fire regime of the plant community itself. Today, qualified people use prescribed burns to mimic the natural fire regime of the region in order to preserve and restore upland habitats and reduce fuel loads that can lead to catastrophic

wildfires. These prescribed fires and natural wildfires produce smoke, which often radiates outside of the property boundary and may cause hazardous conditions on nearby roads. At least two properties in the study area use or plan to use prescribed fires: Lake Lizzie Conservation Area and Lake X Ranch Mitigation Bank. A portion of the Lake Lizzie Conservation Area was recently burned in October 2017. A burn management plan was created for Lake X Ranch Mitigation Bank as part of the permit conditions for credit release.

### **3.5 Human Environment**

#### **3.5.1 Existing Land Use**

A review of GIS data provided by the SJRWMD and SFWMD was performed in order to assess the existing land use within the project area. Land cover determination was based on the Florida Land Use, Cover, and Forms Classification System (FLUCCS). Land types found within the project area are predominantly classified as Wetlands, Agriculture, or Urban and Built-up. Figure 3-6 displays the existing land use for the project area.

#### **3.5.2 Future Land Use**

Future Land Use classification of the project area was determined based on GIS data from Osceola County (May 2010). In the year 2025, the project area land use will largely consist of Mixed Use, Low-Density Residential, and Rural/Agricultural. The 2025 future land use of the project area is displayed on Figure 3-7.

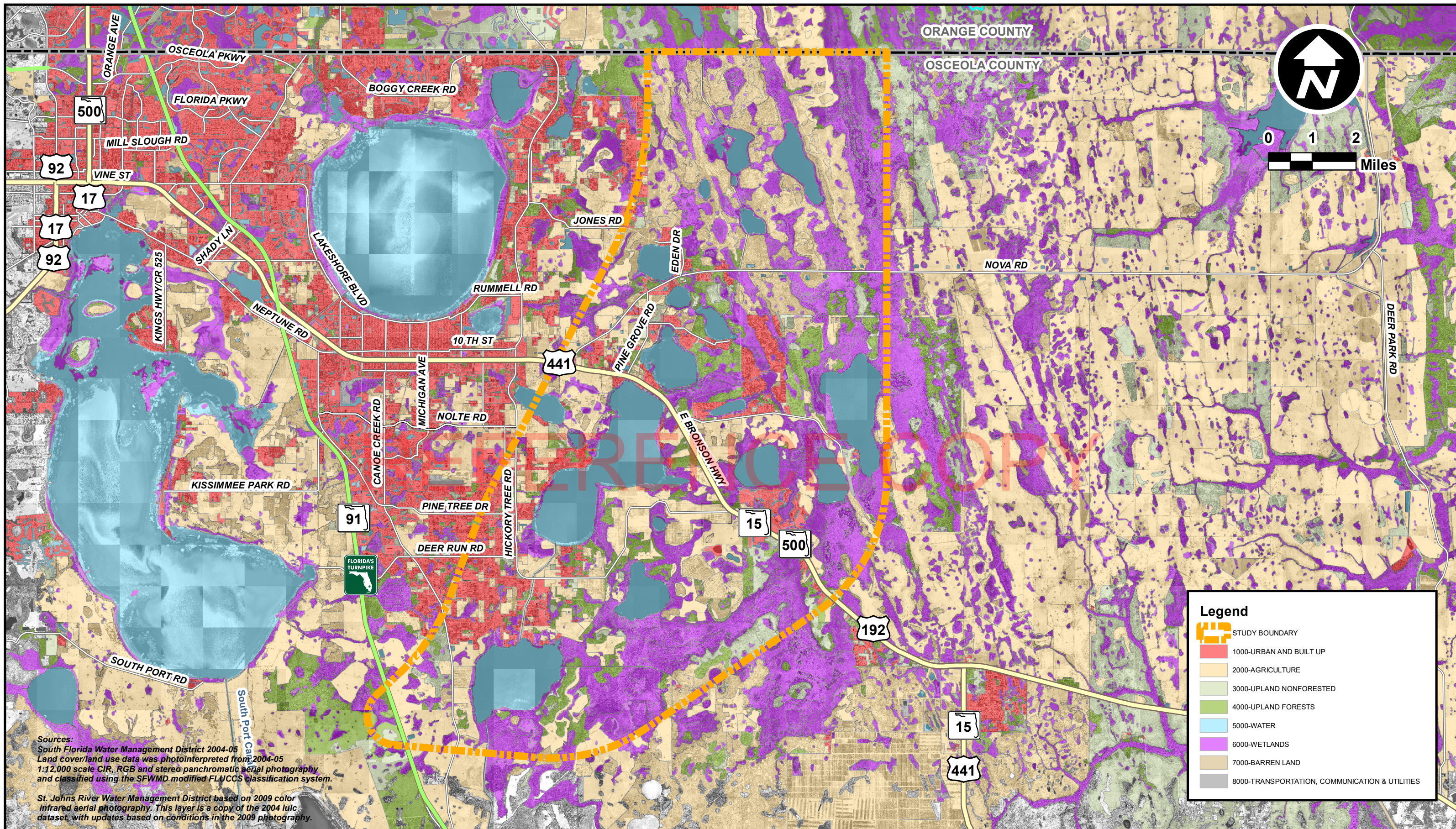
#### **3.5.3 Community and Neighborhood Features**

Information related to Osceola County Site Development Plans, Preliminary Subdivision Plans, and Comprehensive Plan Amendments has been collected and is shown on Figure 3-8. Within the project area, there are a total of 58 Site Development Plans, 18 Preliminary Subdivision Plans, and 29 Comprehensive Plan Amendments, dated from 2001 to 2017.

A review of Osceola County GIS data and the University of Florida Geoplan Center GIS data of existing police stations, religious facilities, daycares, schools, fire stations, cemeteries, government buildings, cultural centers, and hospitals within the project area was performed.

Community facilities within the project area are listed in Table 3-15.







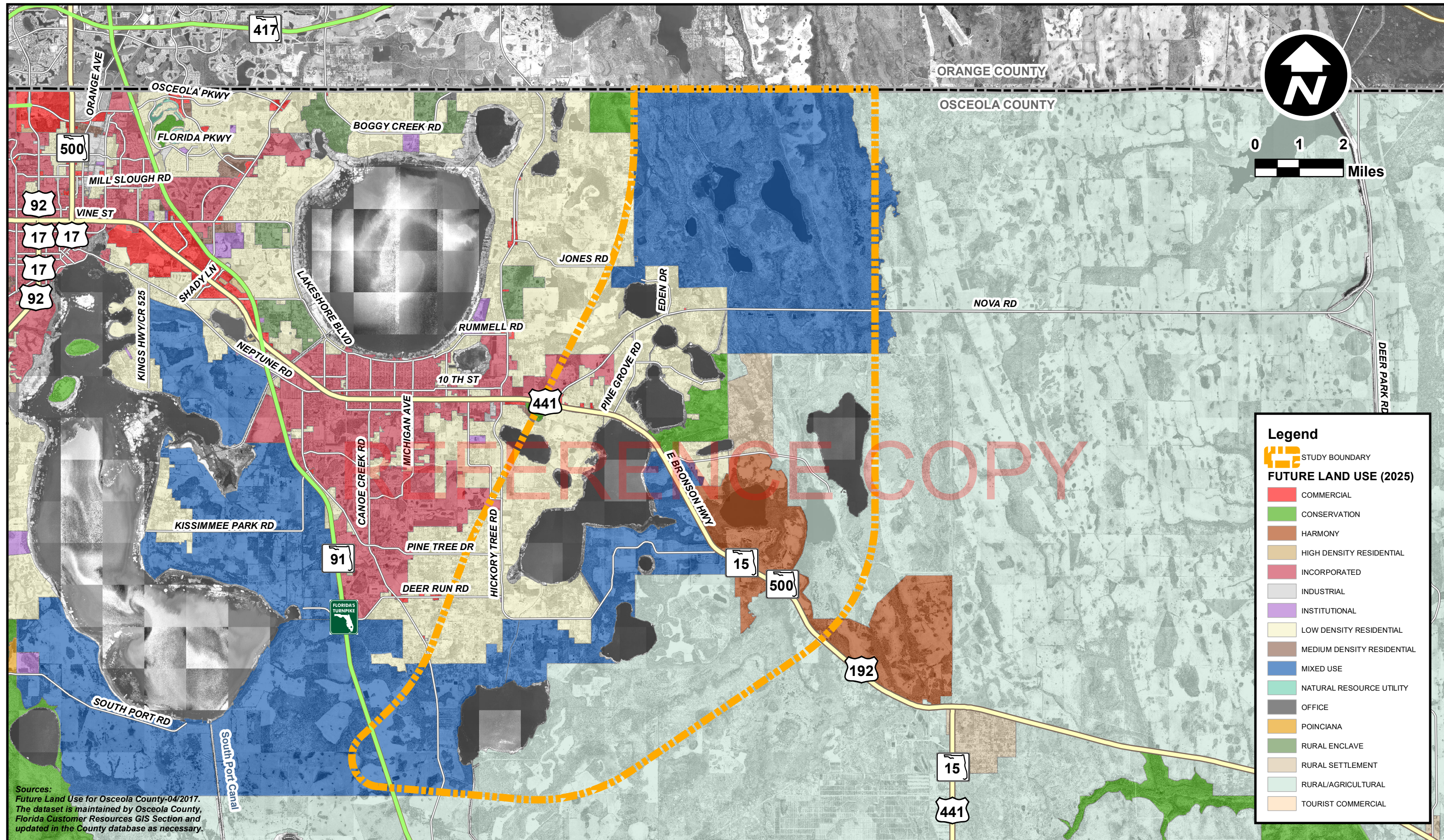








Table 3-15  
Community Facilities

Site Name	Location	Type of Facility
Osceola County Fire Dept. Station 52	1420 Pine Grove Road	Fire Station <sup>1</sup>
Osceola County Fire Dept. Station 54	3600 Arthur J Gallagher Boulevard	Fire Station <sup>1</sup>
Osceola County Fire Dept. Station 53	4070 Hickory Tree Road	Fire Station <sup>1</sup>
Osceola County Fire Dept. Station (Proposed)	5289 E Irlo Bronson Memorial Highway	Fire Station <sup>1</sup>
Amazing Grace Baptist Church	5649 E Irlo Bronson Memorial Highway	Religious <sup>2</sup>
Grace Community Church	5501 E Irlo Bronson Memorial Highway	Religious <sup>3</sup>
Harmony Community Church	3601 Arthur J Gallagher Boulevard	Religious <sup>5</sup>
Harmony High School	3601 Arthur J Gallagher Boulevard	School <sup>4</sup>
Harmony Community School	3365 Schoolhouse Road	School <sup>4</sup>
Harmony Golf Preserve	7252 5 Oaks Drive	Golf Course <sup>5</sup>

<sup>1</sup>Osceola County Fire Station GIS Shapefile data - February 2013; <sup>2</sup>Google Maps 2016 Imagery; <sup>3</sup>Osceola County Religious Facilities GIS Shapefile data -October 2015; <sup>4</sup>University of Florida Geoplan Center School GIS Shapefile data- May 2012; <sup>5</sup>Google Maps 2018 Imagery



### 3.5.4 Cultural Resources

#### 3.5.4.1 Historical

Background research indicated that two historic linear resources and one historic resource (45 years of age or older) were recorded within the study area. Linear resources are the Brick Road/Old Melbourne Highway (8OS01804) and the Yates and Paty Canal (8OS02787). The Brick Road/Old Melbourne Highway (8OS01804) was first recorded in 1998, but the State Historic Preservation Officer (SHPO) determined it was ineligible for listing in the National Register of Historic Places (NRHP) in 2014; however, the portions within the preliminary project APE have not been evaluated. The Yates and Paty Canal (8OS02787) was recorded in 2014, at which time it was determined ineligible for listing in the NRHP by the SHPO.

In addition, the previously recorded historic resource 2875 Biron Road (8OS02786) is a 1955 Frame Vernacular style residence and was determined ineligible by the SHPO for listing in the NRHP. A review of the Osceola County Property Appraiser data and historic aerial photographs suggested the potential for historic resources within the project area (Scarborough, 2017; USDA, 1944, 1959). These resources do not appear to be eligible for listing in the NRHP; however, a field survey will be necessary for proper identification and evaluation.

If fieldwork is required, it should comply with requirements set forth in Chapters 267, 373, and 872.05, Florida Statutes (FS) as well as any federal regulations for determining possible effects on historic properties listed or eligible for listing in the NRHP or otherwise of historical, architectural, or archaeological value.

#### 3.5.4.2 Archaeological

The archaeological background research indicated that 10 archaeological sites have been recorded within the study area. Data on the sites are presented in Table 3-16. All the sites have been determined ineligible for listing in the NRHP by the SHPO except for the burial mound (8OS00031), which has not been evaluated. Other than the burial mound, the sites consisted of isolated pieces of lithic debitage and a small lithic scatter. The isolated materials today are classified as archaeological occurrences (AOs). An AO is defined as one or two non-diagnostic prehistoric artifacts, or one to five historic artifacts, not known to be distant from the original context, which fit within a hypothetical cylinder of thirty meters diameter, regardless of depth below surface (Florida Master Site File (FMSF), 2011, pp. 30-31). AOs are not considered archaeological sites and thus are not assessed in terms of NRHP-eligibility.

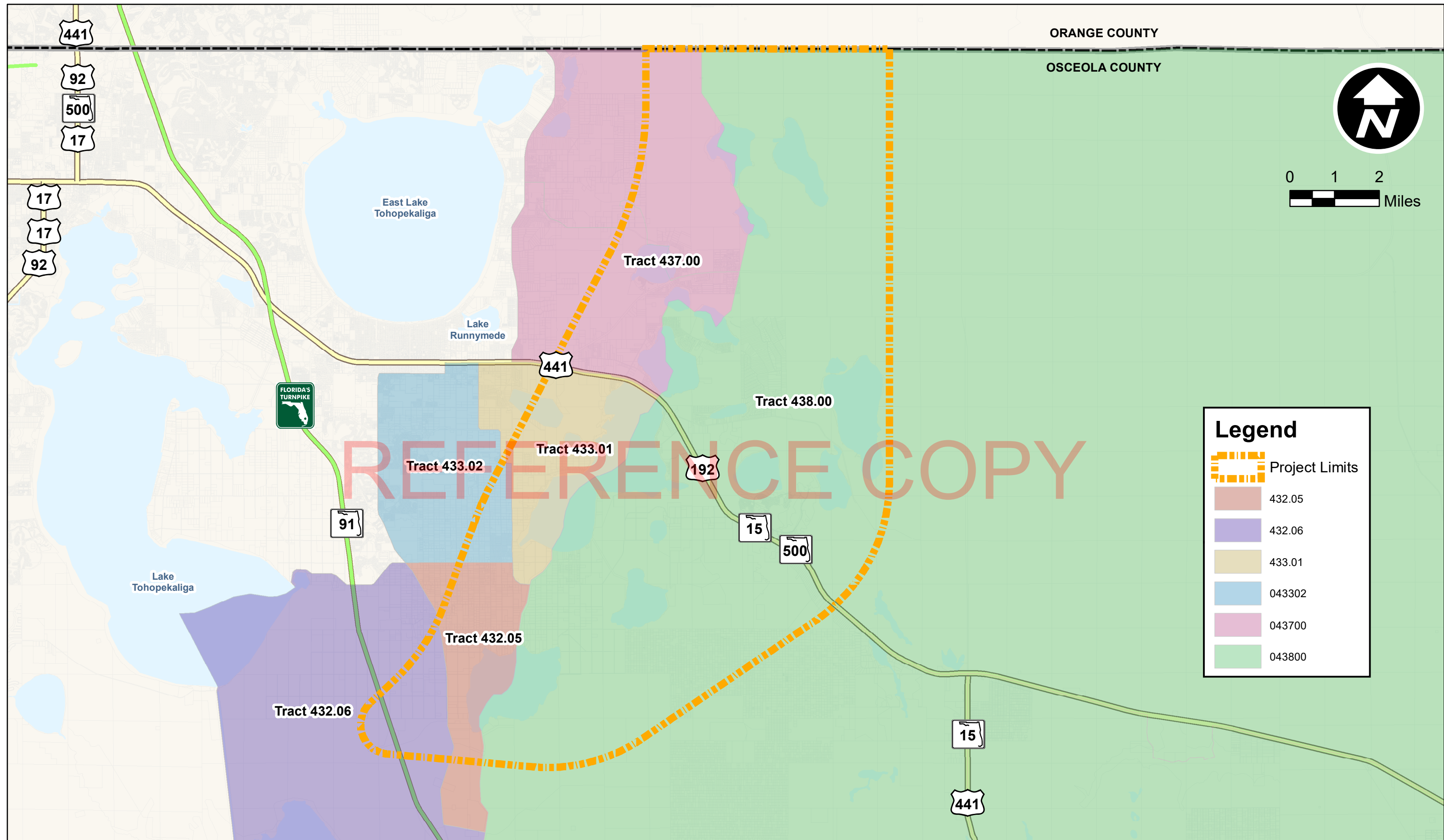
Table 3-16  
Previously Recorded Archaeological Sites Near the Project Area

FMSF #	SITE NAME	SITE TYPE	CULTURE	REFERENCE	SHPO EVAL
8OS00030	Alligator Lake	Platform mound	St. Johns I-II	FMSF	Not Evaluated
8OS00031	Albritton Mound	Burial mound	St. Johns I-II	FMSF	Not Evaluated
8OS00146	Birchwood Canal	AO	Indeterminate	ACI 1990	Ineligible
8OS00147	Buck Lake Canal	AO	Indeterminate	ACI 1990	Ineligible
8OS00148	Buck Lake Swamp	AO	Indeterminate	ACI 1990	Ineligible
8OS00149	Buck Lake North	AO	Indeterminate	ACI 1990	Ineligible
8OS01776	Bronson	Habitation, historic refuse	Middle Archaic, Belle Glade I, 2 <sup>nd</sup> Spanish, Territorial	Dunbar 1994	Not Evaluated
8OS01887	Lizzie Gator	Campsite	Indeterminate	Janus Research 2002	Ineligible
8OS01899	Lizzie Gator 2	AO	Indeterminate	Janus Research 2002	Ineligible
8OS02438	Partin Mound	Mound	Indeterminate	Waters et al. 2005	Insufficient Info

### 3.5.5 Demographic Characteristics

The project area consists of eight unique 2015 US Census tracts. Information regarding the project area's Census tracts is provided on Figure 3-9. Area demographics, household income, and employment status related to each 2015 US Census tract were obtained through 2015 US Census data and the 2015 American Community Survey. This information is located in Table 3-17, Table 3-18, and Table 3-19 respectively.





**Table 3-17**  
**Project Area Demographics**

Geography	Census Block	2015 Population	<sup>1</sup> Percent White	<sup>1</sup> Percent Black	<sup>1</sup> Percent Other	Total Hispanic Population
Study Area (including entire block)	-	26,180	93%	2%	2%	17%
Census Tract 432.05	1	1,610	96%	0%	0%	9%
Census Tract 432.06	1	299	96%	0%	0%	4%
Census Tract 433.01	1	1,630	97%	0%	0%	10%
Census Tract 433.02	1	12,449	80%	10%	9%	28%
Census Tract 437.00	1	2,118	92%	0%	3%	23%
Census Tract 437.00	2	3,519	93%	1%	6%	31%
Census Tract 438.00	1	3,739	92%	5%	1%	22%
Census Tract 438.00	2	816	95%	0%	0%	9%

1= Population Reporting One Race

**Table 3-18**  
**Project Area Household Income Characteristics (2015)**

Geography	Census Block	Median Household Income (Dollars)	Percentage of Population Below Poverty Level
Study Area Average (including entire block)	-	\$53,076	8.2
Census Tract 432.05	1	\$60,478	7.6
Census Tract 432.06	1	\$60,313	5.3
Census Tract 433.01	1	\$62,500	5.0
Census Tract 433.02	1	\$55,746	8.4
Census Tract 437.00	1	\$69,614	1.9
Census Tract 437.00	2	\$51,643	18.6
Census Tract 438.00	1	\$64,315	8.7
Census Tract 438.00	2	N/A	18.1



Table 3-19  
Project Area Employment Status (2015)

Geography	Census Block	Percentage of Employed Population 16 Years Old + in Labor Force	Percentage Unemployed Population 16 Years Old + in Labor Force
Study Area (including entire block)	-	63%	7%
Census Tract 432.05	1	64%	7%
Census Tract 432.06	1	66%	9%
Census Tract 433.01	1	70%	6%
Census Tract 433.02	1	65%	5%
Census Tract 437.00	1	66%	7%
Census Tract 437.00	2	49%	6%
Census Tract 438.00	1	66%	7%
Census Tract 438.00	2	60%	5%

### 3.5.6 Aesthetic Features

The region has a relatively flat topography and a high surface water table. The area is characterized by large lakes, gently rolling hills, agricultural lowlands, and forested wetlands. Landscaping improvements are limited within the study area, with the exception of new mixed-use developments, such as Harmony.

### 3.5.7 Mass Transit Facilities

Four new SunRail stops are being constructed as a part of SunRail's Phase Two South developments. All four stops are located outside of the project area and will connect Sand Lake Road in Orange County to Poinciana Boulevard in Osceola County.

There are currently no existing LYNX bus routes or facilities within the project area.

### 3.5.8 Freight and Intermodal Centers

Located in the southwestern corner of the project area is one SIS roadway: Florida's Turnpike. There are no intermodal centers located within the study area.

### 3.5.9 Pedestrian and Bicycle Facilities

There are limited pedestrian and bicycle facilities within the study area. There are existing sidewalks and bicycle lanes on both sides of Narcoossee Road (CR 15) from US 192 (SR 500) to SR 417. However, there are no sidewalks on Canoe Creek Road (CR 523) from Lake Cypress Road to Mildred Bass Road, on Mildred Bass Road from Canoe Creek Road (CR 523) to Story Road, on

Hickory Tree Road (CR 534), on US 192 (SR 500) from Old Melbourne Highway (CR 500A) to Arthur J. Gallagher Boulevard (Harmony High School), on Old Melbourne Highway (CR 500A) from SR 50 to Hickory Tree Road (CR 534), nor on Nova Road (CR 532) from US 192 (SR 500) to Lake Conlin Road.

A proposed portion of the FNST and a portion of an existing trail from the Florida Greenways and Trails System is located within the study area as shown on Figure 3-10. It is anticipated that the Office of Greenways and Trails will approve this portion in the near future.

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### 3.5.10 Transportation Plans

#### **MetroPlan Orlando Long Range Transportation Plan**

The MPO LRTP (Blueprint 2040 for Transportation) Cost Feasible Projects section includes funding for the Northeast Connector Expressway in the Osceola County Expressway Authority-Funded Projects table (Table 12, p. 40). The LRTP indicates that PD&E, design, right-of-way, and construction phases will be funded by 2030.

The MPO LRTP (Blueprint 2040 for Transportation) Bicycle and Pedestrian Plan shows no existing plans for trails or bicycle and pedestrian transportation facilities in the vicinity of the Northeast Connector Expressway.

#### **Osceola County Comprehensive Plan**

The Northeast Connector Expressway is included in the Osceola County Comprehensive Plan TRN 1A: Roadway Network-2040 map.

The Comprehensive Plan Transportation Element Policy 2.2.2: Florida's Turnpike and Orlando Orange County Expressway Authority states the following:

*"The County shall work with Florida's Turnpike and the Orange County Expressway Authority (OOCEA) to ensure the proper planning and selection of future expressways and interchanges. In addition, the County will ensure through the coordination process that interchange facilities and lane expansions are consistent with the County's Comprehensive Plan."*

The Osceola County Comprehensive Plan TRN 4: Transit System-2040 map shows Premium Transit along the Northeast Connector Expressway corridor.

The Osceola County Comprehensive Plan TRN 5: Bicycle and Trail Facilities-2040 map shows several planned multi-use/equestrian trails and planned off-street trails just west of the study area and east of East Lake Tohopekaliga. No trails are shown that would be consistent with the Northeast Connector Expressway corridor.

#### **Orange County Comprehensive Plan**

The project is not included in the Orange County Comprehensive Plan. However, policies state that the County adopts the MPO LRTP as the long-term transportation improvement program.

The Orange County Comprehensive Plan includes planned bicycle and pedestrian facilities in the vicinity of the study area. The "Proposed Innovation/UCF Multi-Use Trail" begins north of Lake Hart and extends north to University of Central Florida (UCF). There is also a "Proposed Other Multi-Use Trail" that extends from Lake Hart south to the Osceola/Orange County line.

#### **LYNX System Plans**

The LYNX Vision 2030 Master Plan proposes a future corridor that will run along US 192 (SR 500) from Lake County to St. Cloud (2020 Network) and a route that will run from OIA to UCF via the proposed Innovation Way planned development. This proposed corridor contains unconstructed roadways (2025 Network).



### 3.6 Contamination

A preliminary contamination screening evaluation was conducted for the study area. Relevant information from FDEP, USEPA, and various local agencies in Osceola County was reviewed to identify known or potential contamination sites within the project study area.

For the purposes of this report, the Contamination Potential Risk Ratings (CPRR) were based in part upon the ranking system outlined in Chapter 20 of the FDOT PD&E Manual. However, this system was modified for this feasibility study due to the level of investigation conducted.

For the purposes of this study, potential contamination sites identified during the database review were assigned either a Low or High CPRR, as summarized below.

1. **Low-Risk Sites:** Based on information contained in the database reports, there is a limited potential for contamination impacts to have occurred at these sites as described in the examples below.
  - Sites with registered above ground or underground storage tanks but no documented releases to the environment.
  - Sites in locations such that contamination impacts (if present) are unlikely for the project.
2. **High-Risk Sites:** Consistent with Chapter 20 of the FDOT PD&E Manual, definition examples include the following:
  - Sites with documented releases to the environment, such as leaking underground storage tank (LUST) sites; all LUST sites, even if remedial activities are currently ongoing, are listed as **High**.
  - Sites contained in other databases, such as brownfields, which indicate that a significant contamination problem may exist or has existed at the site.

Based on the results of the limited contamination screening activities, the following CPRRs were assigned to sites within the study area and are presented in Table 3-20 and the locations are shown on Figure 3-11.

Table 3-20  
Potential Contamination Sites

Site No.	Facility Name & Address	FDEP Facility ID No./EPA ID No.	Risk Rating
1	Alligator Lake Grove, Whipp O Will Lane St. Cloud, FL	49/8840665	Low
2	Harmony Golf Preserve St. Cloud, FL	9810534	Low
3	Harmony Golf Preserve St. Cloud, FL	COM_291173	High
4	Mercury Racing, 7555 Old Melbourne HWY St. Cloud, FL	8838856	High
5	Jiffy Food Store #2483, 5800 Alligator Lake Shore W. St. Cloud, FL	8513690	High
6	D&N Trucking, SR 192 E & Nova Rd (CR 532) St. Cloud, FL	9811736	High

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The following sites were identified within the 2,000-foot buffer zone (study area):

**Site No. 1 – Alligator Lake Grove, Whip O Will Lane, St. Cloud, FL - FDEP ID 49/8840665**

This site is located at the corner of Whip O Will Lane and Barker Road. According to FDEP records, historically this site had one 20,000-gallon underground storage tank with diesel fuel registered in January 1992. Petroleum contamination was discovered during a tank closure assessment in March 1996. After reviewing the May 2004 Groundwater Analytical Testing Report for Alligator Lake Grove, a “no further action” finding was issued for this site. Based on current use and historical conditions described above, this site has been assigned a CPRR of **Low**.

**Site No. 2 – Harmony Golf Preserve, St. Cloud, FL - FDEP ID 9810534**

This site is the former Harmony Golf Preserve maintenance yard. According to documents found on FDEP’s Electronic Document Management System (OCULUS), this site is currently undergoing Natural Attenuation Monitoring (NAM) activities for petroleum and arsenic-impacted soils discovered in 2008. In a recent report (June 2017), Universal Engineering Sciences, Inc. recommended that NAM activities cease. In a response letter, FDEP concurred with the recommendation of no further action pending additional requested documentation. Based on current conditions, this site has been assigned a CPRR of **Low**.

**Site No. 3 – Harmony Golf Preserve, St. Cloud, FL - FDEP ID COM\_291173**

This site is also located at the former Harmony Golf Preserve maintenance yard. According to documents available on OCULUS, this site is active under the FDEP Limited Scope Remediation Action Plan. Due to lack of available site documentation, a determination of the current site conditions could not be made. This site has been assigned a CPRR of **High**.

**Site No. 4 – Mercury Marine, St. Cloud, FL - FDEP ID 8838856**

The former Mercury Marine facility is located along the southwest shore of Lake Conlin at the end of Old Melbourne Highway (CR 500A). According to documents available on OCULUS, this site is currently undergoing NAM activities. The most recent groundwater sampling event, performed on September 18, 2017, was summarized in the “Natural Attenuation Monitoring Report Year 3” dated November 13, 2017. Laboratory analytical results indicated concentrations of naphthalene and benzene above their respective groundwater cleanup target levels (GCTLs). NAM activities will continue in accordance with the sampling plan until two clean sampling events are achieved. Based on the current conditions described above and proximity of the site to the proposed project, this site has been assigned a CPRR of **High**.

**Site No. 5 – Jiffy Food Store #2483, St. Cloud, FL - FDEP ID 8513690**

This site currently operates as the Jiffy Food Store, located along Alligator Lake Shore West, approximately 1,100 feet northwest of Alligator Lake. According to documents available on OCULUS, three single-wall Underground Storage Tanks (USTs) were installed in the 1970s and subsequently removed in 2009. Groundwater and soil contamination were reported during removal of the three USTs, their associated dispensers, and piping. Site assessment activities concluded that no soils exceeded Soil Cleanup Target Levels, and groundwater analytical results



indicated only cumene exceeded GCTLs for multiple monitoring wells. Supplemental site assessment activities, including additional monitoring well installations and groundwater sampling, were performed to delineate the cumene plume. The recent Supplemental Site Assessment Report dated September 1, 2017, indicated the cumene plume that remained was smaller than previous events, and concentrations were reported below GCTLs in all but one monitoring well. Therefore, quarterly groundwater sampling will continue in anticipation of contaminants remaining in place within the property boundary. Based on the current site conditions described above and proximity of the site to the proposed roadway alignment, this site has been assigned a CPRR of **High**.

#### **Site No. 6 – D&N Trucking, St. Cloud, FL - FDEP ID 981173**

This site is located along East Irlo Bronson Memorial Highway and Nova Road (CR 532). According to the Discharge Report Form available on OCULUS, Osceola County reported an estimated 30-gallon diesel spill from a ruptured fuel tank on October 10, 2008. Same-day emergency spill response was provided by Incident Management Solutions, Inc.; the affected roadway was cleaned and the visually wet soil area boomed off. It was noted that clean up assistance for the removal of contaminated soil and subsequent backfill activities would be sought from a private contractor. However, the required Source Removal Report (SRR) was not submitted to FDEP by the June 2009 deadline. In correspondence dated October 12, 2009, due to non-submittal of the SRR, this site was referred to the FDEP Central District for site assessment to define the extent and magnitude of any soil or groundwater contamination associated with the October 2008 discharge. No Site Assessment Report information is available on OCULUS at this time. Due to lack of current site documentation, the current site conditions cannot be detailed. This site has been assigned a CPRR of **High**.

### **3.7 Utilities**

Twelve Utility Agencies/Owners (UAOs) have been identified within the project study area by obtaining a Sunshine 811 Design Ticket and through initial utility coordination efforts. These utilities are described in the following sections.

#### **3.7.1 Electrical**

Three electric UAOs have been identified within the project study area, including transmission and distribution facilities. Table 3-21 identifies these UAOs and provides a general description of their facilities located within the project area.

Table 3-21  
Existing Electrical Utilities in the Study Area

Utility Company	Facility	Description
Duke Energy	Electric Transmission	<ul style="list-style-type: none"> <li>Overhead transmission lines with distribution lines underbuilt on the west/north side of Hickory Tree Road (CR 534)</li> <li>Overhead transmission lines with distribution lines underbuilt on the east side of US 192 (SR 500)</li> </ul>

Utility Company	Facility	Description
		<ul style="list-style-type: none"> <li>Overhead transmission lines with distribution underbuilt on the north side of Deer Run Road east from OUC sub-station</li> </ul>
Duke Energy	Electric Distribution	<p>Electric distribution service throughout the study area, particularly at the following locations where proposed routes cross:</p> <ul style="list-style-type: none"> <li>Overhead distribution lines on the east side of Canoe Creek Road (CR 523)</li> <li>Overhead distribution lines on the east/south side of Story Road</li> <li>Overhead distribution lines on the south side of Deer Run Road</li> <li>Overhead distribution lines on the south side of Alligator Lake Rd.</li> <li>Overhead distribution lines on the west side of Hickory Tree Road (CR 534)</li> <li>Overhead distribution lines on the west side of Albritton Road</li> <li>Overhead distribution lines on the west side of Lake Gentry Road</li> <li>Overhead distribution lines on the south side of Lake Lizzie Road</li> <li>Overhead distribution lines on the north/east side of Old Melbourne Highway (CR 500A)</li> <li>Overhead distribution lines on the east/south side of Hickory Tree Road (CR 534)</li> <li>Overhead distribution lines on the west side of US 192 (SR 500) north of Breezy Pine Road</li> <li>Overhead distribution lines on the north side of Breezy Pine Road</li> <li>Overhead distribution lines on the west side of Nursery Road</li> <li>Overhead distribution lines on the north side of Nova Road (CR 532) west of Sungrove Lane; switches to south side east of Sungrove Lane</li> </ul>
Orlando Utilities Commission	Electric Transmission	<ul style="list-style-type: none"> <li>OUC sub-station on the east side of US 192 (SR 500) just north of Breezy Pine Road</li> <li>Overhead transmission lines cross over Nova Road (CR 532) on the east side of Sungrove Lane</li> <li>Overhead transmission lines on the south side of Jones Road</li> <li>OUC sub-station located approximately 2,000 feet east of the eastern pavement terminus of Jones Road with overhead transmission lines traversing north, east and west from the sub-station.</li> <li>Overhead transmission lines on the east side of Canoe Creek Road (CR 523) north of Deer Run Road, then east on Deer Run Road to a sub-station located approximately 3,000 feet east of Canoe Creek</li> </ul>



### 3.7.2 Natural Gas

Florida Gas Transmission Company and Florida Public Utilities have been identified as having pipelines within the project study area. Table 3-22 provides a general description of their facilities.

Table 3-22  
Existing Natural Gas Utilities in the Study Area

Utility Company	Facility	Description
Florida Gas Transmission	Natural Gas Transmission	<ul style="list-style-type: none"> <li>20" and 30" gas transmission pipelines in an easement running generally east to west cross US 192 (SR 500) approximately 560 feet east of Bradley Drive. The pipelines continue running southeasterly along the east side and nearly parallel to SR US 192 (SR 500).</li> </ul>
Florida Public Utilities	Natural Gas Distribution	<ul style="list-style-type: none"> <li>Small gas distribution lines primarily in the residential areas bounded by Canoe Creek Road (CR 523) to the west, Hickory Tree Road (CR 534) to the east, Deer Run Road to the south, and Pine Tree Road to the north.</li> </ul>

### 3.7.3 Other Utilities

Seven other UAOs have been identified as having facilities within the project study area, including existing cable television (CATV), telecommunications, and proposed water and wastewater utilities. Table 3-23 identifies these UAOs and provides a general description of their facilities located on the project.

Table 3-23  
Other Existing and Proposed Utilities in the Study Area

Utility Company	Facility	Description
AT&T Corporation	Communications Fiber Optic Cable	<ul style="list-style-type: none"> <li>2- 2" conduit with a high capacity fiber optic cable located in a 10-foot easement just off the median shoulder of Florida's Turnpike.</li> </ul>
AT&T Florida	Telephone/Fiber Optic Cable	<ul style="list-style-type: none"> <li>24 count fiber optic cable on Duke Energy distribution poles along the west side of US 192 (SR 500).</li> </ul>
CenturyLink	Telephone/Fiber Optic Cable	<ul style="list-style-type: none"> <li>Aerial and buried fiber optic and copper cables throughout the study area. Aerial cables are attached to Duke Energy distribution pole lines.</li> </ul>
City of St. Cloud	Water/Sewer/Reclaimed Water	<ul style="list-style-type: none"> <li>Proposed 12" and 16" water main extensions along Hickory Tree Road (CR 534) to serve planned Bueno Lago residential community.</li> <li>Proposed 8" and 12" wastewater force mains along Hickory Tree Road (CR 534) to serve planned Bueno Lago residential community.</li> <li>Proposed 16" reclaimed water main extension along Hickory Tree Road (CR 534) to serve planned Bueno Lago</li> </ul>

Utility Company	Facility	Description
		residential community.
Comcast Communications	CATV	<ul style="list-style-type: none"> <li>• Aerial and buried fiber optic and coaxial cable throughout the populated residential areas west and south of Alligator Lake and south to the north banks of Lake Gentry.</li> <li>• Aerial and buried fiber optic and coaxial cable in the populated residential and commercial areas west of Lake Lizzie between US 192 (SR 500) and Nova Road (CR 532).</li> <li>• Aerial and buried fiber optic cable along US 192 (SR 500)</li> </ul>
Charter Communications	CATV/Telephone Fiber Optic Cable	<ul style="list-style-type: none"> <li>• Aerial and buried fiber optic and coaxial cable throughout the populated residential areas west and south of Alligator Lake and south to the north banks of Lake Gentry.</li> <li>• Aerial and buried fiber optic and coaxial cable in the populated residential and commercial areas west of Lake Lizzie between US 192 (SR 500) and Nova Road (CR 532).</li> <li>• Aerial and buried fiber optic cable along US 192 (SR 500) throughout the study area</li> <li>• Aerial and buried fiber optic and coaxial cable along Old Melbourne Highway (CR 500A) from US 192 (SR 500) east to Lake Conlin Road.</li> </ul>
TOHO Water Authority	Water/Sewer/ Reclaimed Water	<ul style="list-style-type: none"> <li>• Proposed 16" or 20" water main extension along Narcoossee Road (CR 15) from Boggy Creek Road to Cyrils Drive and along Cyrils Drive from Narcoossee Road (CR 15) east to Abshire Road</li> <li>• Proposed 16" wastewater force main extension along Narcoossee Road (CR 15) from Boggy Creek Road to Cyrils Drive and along Cyrils Drive from Narcoossee Road (CR 15) east to Abshire Road.</li> </ul>

### 3.7.4 Utility Mitigation and Cost

Due to the nature of the existing conditions throughout the study area, it is anticipated that the alternative corridor alignments for the Northeast Connector Expressway will impact a large number of utility facilities within the study area. Major utility facilities that could be potentially impacted include natural gas pipelines owned and operated by Florida Gas Transmission Company and Florida Public Utilities. In addition, Duke Energy and Orlando Utilities Commission collectively have four transmission substations and various high voltage transmission lines throughout the project study area.

During the project design, mitigation measures should be taken to avoid conflicts with existing utilities wherever possible to minimize costs to the project. If impacts are unavoidable, design alternatives would be reviewed to allow for relocation of impacted facilities to eliminate conflicts with the new improvements, minimize disruptions of service, and provide adequate accessibility for future maintenance.



Relocations of facilities located in easements and on private property would likely be eligible for reimbursement. All measures will be taken to avoid impacting the existing utility facilities identified in easements or located on privately-owned parcels. Though relocation of other facilities within the existing right-of-way is anticipated, all efforts will be made during the study to minimize impacts to existing pipelines, substations, and transmission facilities to the greatest extent possible.

### **3.8 Railroads**

There are no railroad tracks or crossings within the project study area.

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## 4. Traffic Considerations

### 4.1 Historical and Current Traffic

Osceola County has experienced significant growth over the last 26 years, increasing in population from 107,728 in 1990 to 336,015 (estimated) in 2016. This represents an annual growth rate of 4.2 to 6.0 percent. While much of the past growth occurred west and north of the study area, it is now expanding into the study area.

Table 4-1 summarizes the historical traffic growth rates within the study area. The basis for the calculated rate in years is also provided. In general, the more years, the more reliable the rate. The  $R^2$  value is a statistical measure of how close the actual volumes are to the calculated growth rate line. A value of 100 percent reflects a growth rate that exactly matches up with the historic volumes. Thus, the closer the  $R^2$  value is to 100 percent, the more accurate the growth rate. Another factor affecting the rates is the traffic volume. Roads with lower volumes (i.e., less than 5,000 Annual Average Daily Traffic [AADT]) can have wider swings in growth rates – as a relatively low change in volume represents a higher percentage of the volume.

State roads in the study area (i.e., Florida's Turnpike and US 192 [SR 500]) have consistent growth rates between 1.20 and 2.51 percent per year. The northern portions of Narcoossee Road (CR 15) have experienced the highest growth rates, with rates ranging from 5.71 to 15.03 percent per year.

Other roads within the study area carry lower traffic volumes and have a wide range of growth rates. Hickory Tree Road (CR 534), from Deer Run Road to US 192 (SR 500), shows negative growth rates (from -1.15 to -3.45); however, the low  $R^2$  represents wide swings in traffic volumes from the calculated growth rate. East of Dear Run Road, Hickory Tree Road (CR 534) has a growth rate of 8.05 percent; however, the  $R^2$  is also low for this section. Canoe Creek Road (CR 523) and Old Melbourne Highway (CR 500A) have growth rates of -6.47 and -3.75 percent, respectively (both have a low  $R^2$ ). Nova Road (CR 532) has growth rates ranging from 3.09 to 5.29 percent with high  $R^2$  values.

Table 4-1  
Historical AADT Growth Rates

Roadway		2016 AADT	Historical Growth Rate	Basis (years)	R <sup>2</sup>
From <sup>1</sup>	To <sup>1</sup>				
Florida's Turnpike					
Canoe Creek Service Plaza	Northeast Connector Expressway (NCE) Interchange (A,B,C,D,E)	33,000	1.87%	11	44.30%
NCE Interchange (A,B,C,D,E)	Friars Cove Road	33,000	1.87%	11	44.30%
Friars Cove Rd	Kissimmee Park Rd	33,000	1.87%	11	44.30%
Canoe Creek Road					



Roadway		2016 AADT	Historical Growth Rate	Basis (years)	R <sup>2</sup>
From <sup>1</sup>	To <sup>1</sup>				
(CR 523)					
Lake Cypress Rd	NCE Interchange (C,D,E)	1,800	-6.47%	9	63.48%
NCE Interchange (C,D,E)	NCE Interchange (A,B)	1,800	-6.47%	9	63.48%
NCE Interchange (A,B)	New Road to West	1,800	-6.47%	9	63.48%
New Road to West	Mildred Bass Road	1,800	-6.47%	9	63.48%
Mildred Bass Road					
Canoe Creek Rd	Story Rd	N/A	N/A	N/A	N/A
Narcoossee Road (CR 15)					
US 192 (SR 500)	Rummell Rd	19,300	2.29%	9	21.03%
Rummell Rd	Cyrils Dr	21,000	4.22%	9	70.30%
Cyrils Dr	Boggy Creek Rd	22,500	5.71%	9	79.39%
Boggy Creek Rd	Osceola Parkway Ext.	31,000	15.03%	5	80.96%
Osceola Parkway Ext.	SR 417	31,000	15.03%	5	80.96%
Hickory Tree Road (CR 534)					
US 192 (SR 500)	Nolte Rd	1,000	-1.15%	9	9.80%
Nolte Rd	Deer Run Rd	3,500	-3.45%	9	18.54%
Deer Run Rd	NCE Interchange (B,C)	1,750	8.05%	9	21.85%
NCE Interchange (B,C)	US 192 (SR 500)	1,750	8.05%	9	21.85%
Nolte Road					
Hickory Tree Rd (CR 534)	NCE Interchange (A)	N/A	N/A	N/A	N/A
NCE Interchange (A)	US 192 (SR 500)	N/A	N/A	N/A	N/A
US 192 (SR 500)					
Narcoossee Rd (CR 15)	Nova Rd (CR 532)	24,500	1.19%	16	36.55%
Nova Rd (CR 532)	NCE Interchange (A)	21,000	1.87%	16	59.60%
NCE Interchange (A)	Old Melbourne Highway (CR 500A)	21,000	1.87%	16	59.60%
Old Melbourne Highway (CR 500A)	NCE Interchange (B,C,D)	15,000	2.51%	16	57.21%
NCE Interchange (B,C,D)	Hickory Tree Rd (CR 534)	15,000	2.51%	16	57.21%
Hickory Tree Rd (CR 534)	NCE Interchange (E)	10,200	1.20%	17	57.94%
NCE Interchange (E)	US 192 (SR 500)	10,200	1.20%	17	57.94%
Old Melbourne Highway (CR 500A)					
US 192 (SR 500)	Lake Conlin Rd	2,000	-3.75%	6	42.86%
Nova Road (CR 532)					
US 192 (SR 500)	Pine Grove Rd	3,700	3.09%	9	90.45%
Pine Grove Rd	NCE Interchange (B,C,D,E)	3,700	3.09%	9	90.45%
NCE Interchange (B,C,D,E)	East	1,500	5.29%	6	77.14%

<sup>1</sup>Letter (i.e., A,B,C,D,E) references relevant corridor associated with location.

## 4.2 Roadway Operational Conditions

Table 4-2 summarizes the current roadway operating conditions within the study area. All of the roadways currently operate with a volume to capacity (V/C) ratio of less than 1.0, which signifies sufficient capacity and no congestion.

Table 4-2  
Existing Roadway Operational Conditions

Roadway		# Of Lanes	Type <sup>(2)</sup>	2016 AADT	2016 V/C <sup>(3)</sup>
From <sup>1</sup>	To <sup>1</sup>				
Florida's Turnpike					
Canoe Creek Service Plaza	NCE Interchange (A,B,C,D,E)	4	Freeway	33,000	0.55
NCE Interchange (A,B,C,D,E)	Friars Cove Road	4	Freeway	33,000	0.55
Friars Cove Rd	Kissimmee Park Rd	4	Freeway	33,000	0.55
Canoe Creek Road (CR 523)					
Lake Cypress Rd	NCE Interchange (C,D,E)	2	Uninterrupted	1,800	0.06
NCE Interchange (C,D,E)	NCE Interchange (A,B)	2	Uninterrupted	1,800	0.06
NCE Interchange (A,B)	New Road to West	2	Uninterrupted	1,800	0.06
New Road to West	Mildred Bass Road	2	Uninterrupted	1,800	0.06
Mildred Bass Road					
Canoe Creek Rd	Story Rd	2	Uninterrupted	N/A	N/A
Narcoossee Road (CR 15)					
US 192 (SR 500)	Rummell Rd	4	Class I	19,300	0.46
Rummell Rd	Cyrils Dr	4	Class I	21,000	0.50
Cyrils Dr	Boggy Creek Rd	4	Class I	22,500	0.54
Boggy Creek Rd	Osceola Parkway Ext.	6	Class I	31,000	0.58
Osceola Parkway Ext.	SR 417	6	Class I	31,000	0.58
Hickory Tree Road (CR 534)					
US 192 (SR 500)	Nolte Rd	2	Class I	1,000	0.05
Nolte Rd	Deer Run Rd	2	Uninterrupted	3,500	0.11
Deer Run Rd	NCE Interchange (B,C)	2	Uninterrupted	1,750	0.05
NCE Interchange (B,C)	US 192 (SR 500)	2	Uninterrupted	1,750	0.05
Nolte Road					
Hickory Tree Rd (CR 534)	NCE Interchange (A)	0	N/A	N/A	N/A
NCE Interchange (A)	US 192 (SR 500)	0	N/A	N/A	N/A
US 192 (SR 500)					
Narcoossee Rd (CR 15)	Nova Rd (CR 532)	4	Class I	24,500	0.59
Nova Rd (CR 532)	NCE Interchange (A)	4	Uninterrupted	21,000	0.29
NCE Interchange (A)	Old Melbourne Highway (CR 500A)	4	Uninterrupted	21,000	0.29
Old Melbourne Highway (CR 500A)	NCE Interchange (B,C,D)	4	Uninterrupted	15,000	0.22



Roadway		# Of Lanes	Type <sup>(2)</sup>	2016 AADT	2016 V/C <sup>(3)</sup>
From <sup>1</sup>	To <sup>1</sup>				
NCE Interchange (B,C,D)	Hickory Tree Rd (CR 534)	4	Uninterrupted	15,000	0.22
Hickory Tree Rd (CR 534)	NCE Interchange (E)	4	Uninterrupted	10,200	0.18
NCE Interchange (E)	US 192 (SR 500)	4	Uninterrupted	10,200	0.18
Old Melbourne Highway (CR 500A)					
US 192 (SR 500)	Lake Conlin Rd	2	Uninterrupted	2,000	0.07
Nova Road (CR 532)					
US 192 (SR 500)	Pine Grove Rd	2	Uninterrupted	3,700	0.11
Pine Grove Rd	NCE Interchange (B,C,D,E)	2	Uninterrupted	3,700	0.11
NCE Interchange (B,C,D,E)	East	2	Uninterrupted	1,500	0.05

Notes:

1) Letter (i.e., A,B,C,D,E) references relevant corridor associated with location. The corridors are identified in Section 6.6.

2) Type of facility used to determine daily capacity in FDOT Generalized Annual Average Daily Volumes

3) Capacity based on FDOT Generalized Annual Average Daily Volume at level of service (LOS) E

### 4.3 Safety/Crash Analysis

Crash rates were calculated for all study area roadway segments. Crash rates are expressed in crashes per million vehicle-miles traveled and can be used to better understand safety concerns of the roadway segment. Statewide average crash rates for various road classifications can be used to provide context for the crash rates experienced on study area roadway segments. Table 4-3 displays the crash rate calculated for each segment. Highlighted cells in Table 4-3 show roadway segments with higher crash rates than the statewide average for similar facilities. Detailed crash data are provided on a segment-by-segment basis in the Existing Conditions section.

Table 4-3  
Crash Analysis

Roadway		5-Year Crashes	Length (miles)	5-Year Crash Rate	Statewide Average Rate
From <sup>1</sup>	To <sup>1</sup>				
Florida's Turnpike					
Canoe Creek Service Plaza	NCE Interchange (A,B,C,D,E)	31	2.31	0.2228	0.8555
NCE Interchange (A,B,C,D,E)	Friars Cove Road	43	4.14	0.1725	
Friars Cove Rd	Kissimmee Park Rd	103	3.49	0.4900	
Canoe Creek Road (CR 523)					
Lake Cypress Rd	NCE Interchange (C,D,E)	19	5	1.0996	0.6985
NCE Interchange (C,D,E)	NCE Interchange (A,B)				
NCE Interchange (A,B)	New Road to West				
New Road to West	Mildred Bass Road				

Roadway		5-Year Crashes	Length (miles)	5-Year Crash Rate	Statewide Average Rate
From <sup>1</sup>	To <sup>1</sup>				
Mildred Bass Road					
Canoe Creek Rd	Story Rd	0	1.40	0.0000	0.6985
Narcoossee Road (CR 15)					
Osceola Parkway Ext.	SR 417	153	3.87	0.6988	4.0563
Boggy Creek Rd	Osceola Parkway Ext.	153	3.87		
Cyrils Dr	Boggy Creek Rd	124	5.94	0.5447	3.1393
Rummell Rd	Cyrils Dr	124			
US 192 (SR 500)	Rummell Rd	17	1.51	0.3196	
Hickory Tree Road (CR 534)					
US 192 (SR 500)	Nolte Rd	12	1.60	3.4247	1.0042
Nolte Rd	Deer Run Rd	24	2.98	1.2609	0.6985
Deer Run Rd	NCE Interchange (B,C)	36	6.60	1.7079	
NCE Interchange (B,C)	US 192 (SR 500)				
Nolte Road					
Hickory Tree Rd (CR 534)	NCE Interchange (A)	N/A	N/A	N/A	N/A
NCE Interchange (A)	US 192 (SR 500)	N/A	N/A	N/A	N/A
US 192 (SR 500)					
Old Melbourne Highway (CR 500A)	NCE Interchange (B,C,D)	38	2.50	0.5553	0.6433
NCE Interchange (B,C,D)	Hickory Tree Rd (CR 534)				
Hickory Tree Rd (CR 534)	Harmony High School	24	0.63	2.0465	0.6433
Old Melbourne Highway (CR 500A)					
US 192 (SR 500)	Lake Conlin Rd	5	2.54	0.5393	0.6985
Nova Road (CR 532)					
US 192 (SR 500)	Pine Grove Rd	36	9.50	0.5612	0.6985
Pine Grove Rd	NCE Interchange (B,C,D,E)				
NCE Interchange (B,C,D,E)	East				

Note 1 – Letter (i.e., A,B,C,D,E) references relevant corridor associated with location.

Within the study area, Canoe Creek Road (CR 523), Hickory Tree Road (CR 534), and a segment of US 192 (SR 500) have higher crash rates than the statewide average for similar facilities.

The higher crash rate on Canoe Creek Road (CR 523) could be partially due to the narrow shoulder – most crashes involved running off the road. The higher crash rate on Hickory Tree Road (CR 534) could be partially due to the lack of paved shoulders – most crashes involved running off the road and hitting a utility pole or similar object. The higher crash rate on US 192 (SR 500), from Hickory Tree Road (CR 534) to Harmony High School, could be partially due to traffic associated with Harmony High School, which is located on this roadway segment. Fifty-eight percent of the crashes were rear-end collisions around AM peak hours when students were driving to school.



Ultimately, construction of the Northeast Connector Expressway limited-access facility is anticipated to reduce crash rates on all roadway segments within the study area. Trips will be diverted from arterial roads to the new limited-access road – a facility type with a historically lower crash rate.

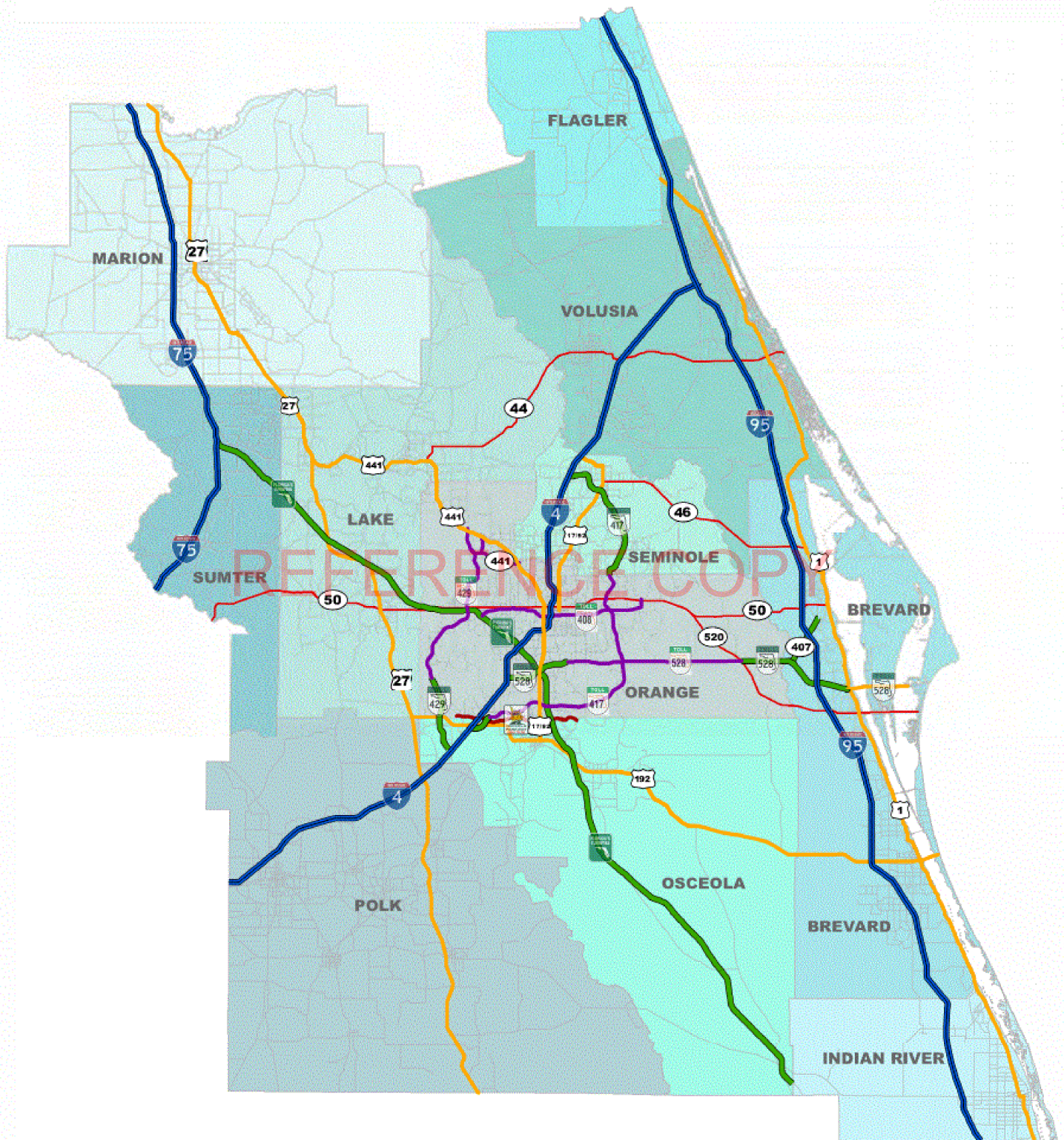
#### **4.4 Travel Demand Modeling**

The traffic forecasts used to analyze the OCX Master Plan Projects for the CFX Concept, Feasibility and Mobility studies are based on an updated and improved travel demand model created specifically for this effort. The travel demand model was used to estimate the expected traffic based on input data such as socio-economic data (i.e. land use, population, employment) and transportation network data (e.g. number of lanes, facility types, trip rates). The primary forecasting tool used over the last 30 years in Florida has been the Florida Standard Urban Transportation Model Structure (FSUTMS). Within the FSUTMS, toll modeling originated by establishing specific toll amounts for appropriate network links and a coefficient to convert tolls to travel time impedance. FSUTMS is run from the Cube Voyager operating system.

CDM Smith, the General Traffic and Earnings Consultant, had developed a travel demand model for a coverage area that includes the CFX system and areas of future expansion and influence. This previous model was based on the 2004 Orlando Urban Area Transportation System (OUATS) model and the 2005 Central Florida Regional Planning Model (CFRPM), version 5.0 and was updated to a base year of 2010. This daily model for the Central Florida region, was developed in the Cube Voyager platform and was designated CFX 1.0. Due to the expansion of the CFX jurisdictional area and the need to study projects in this expanded area, CDM Smith updated the travel demand model to include a larger study area. This new model, herein referred to as the CFX 3.0 model, is developed specifically for forecasting analysis for the CFX System. The CFX 3.0 model is based on the Central Florida Regional Planning Model (CFRPM) version 6.1, in Cube Voyager, because of the larger study area and updated socio-economic data sets.

##### **4.4.1 CFX 3.0 – Base Year Model (2015)**

The CFX 3.0 model was developed using only the daily model from the CFRPM 6.1. The CFRPM 6.1 time of day model was not contemplated for use for the first version of this model. This first version of the CFX 3.0 model was developed for the purpose of evaluating the Osceola County Master Plan projects: Osceola Parkway Extension, Northeast Connector Expressway, Southport Connector Expressway, and the Poinciana Parkway Extension/ I-4 Connector projects for the Concept, Feasibility and Mobility Studies. The CFX 3.0 was validated for a 2015 base year with a concentration on the sub-area of Osceola County and south Orange County. This model covers all of Orange, Seminole, Osceola, Lake, Sumter, Marion, Volusia, Flagler, Polk, Brevard Counties, as well as connected portions of Indian River County. Figure 4-1 contains a map showing the geographic extent of the CFX 3.0 and some of the more important (higher volume) roadways, including the CFX toll facilities, I 4, I-95, Florida's Turnpike System, US Highways and State Routes. The future (or forecast) years for CFX 3.0 are 2025, 2035 and 2045. The CFX 3.0 model has a total of 5,406 traffic analysis zones (TAZs) including the 56 external zones.

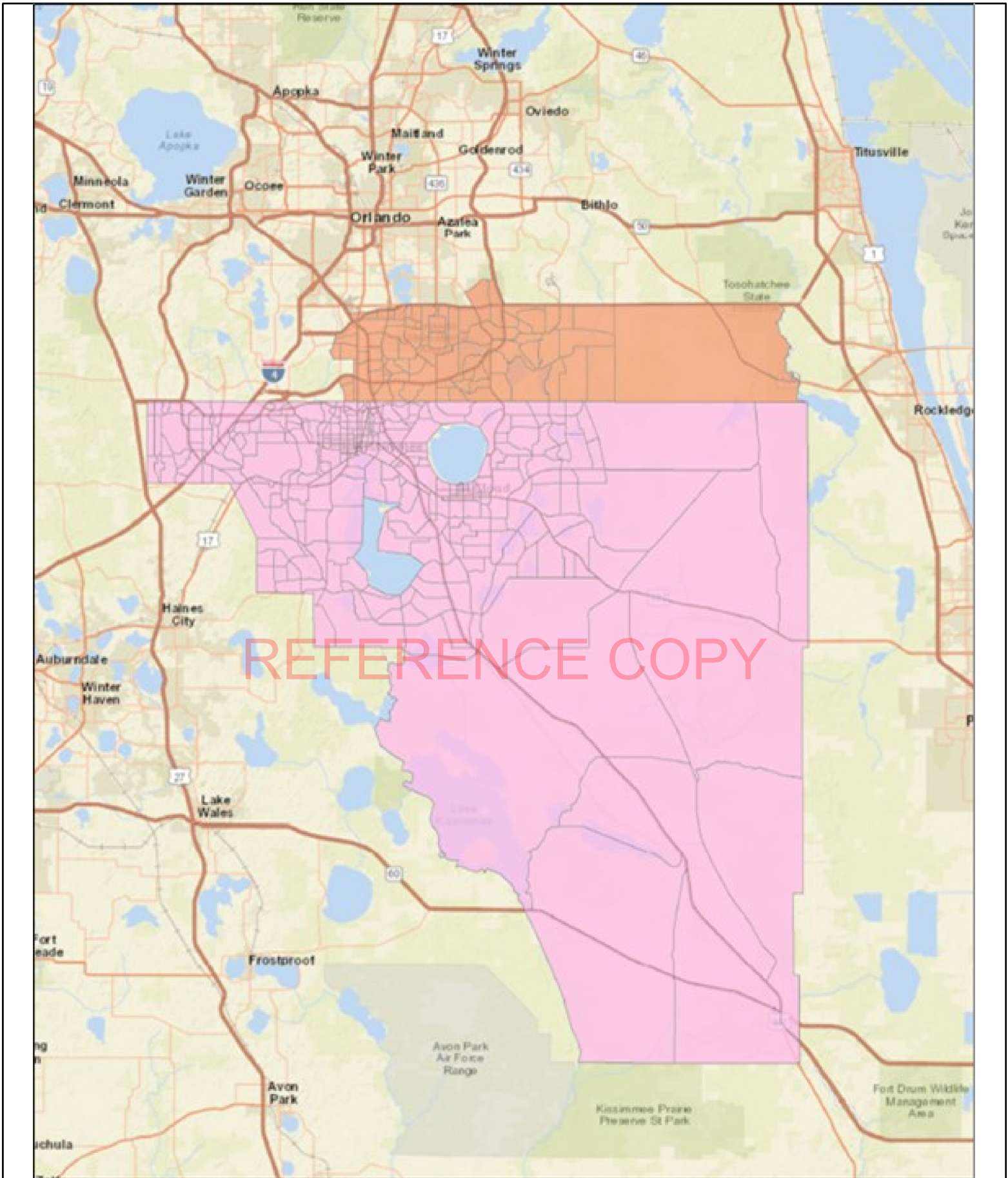




#### 4.4.1.1 Model Characteristics

The base model is the CFRPM Model version 6.1, which has a base-year socio-economic data set for 2015. For use in studying the OCX Master Plan projects several changes were made to the base year model before validation. The 2015 base year socio-economic data for the CFX model was developed by utilizing the 2015 socio-economic data set from the CFRPM model for all location other than southeast Orange County and southeast Osceola County. For SE Orange County and Osceola County (Study Sub-area highlighted on Figure 4-2), Fishkind and Associates (FKA, or Fishkind) was employed to develop population, dwelling units/households, school enrollment and employment control totals for the base year socio-economic data sets. FKA was provided the disaggregated zonal structure (described in next section) for the Study Sub-area and allocated the population, school population and employment using the methodology described in the FKA report. The base-year network was reviewed and improved to reflect the 2015 existing conditions and include details about the CFX System and other toll roads. In addition, using Geographic Information System (GIS), the network was compared to 2015 aerial photography and corrections made to various link characteristics, such as the number of lanes, facility type, area type and speed. Traffic counts in the base year were assembled and reviewed. These included counts from CFX, FDOT, county and municipal governments.

REFERENCE COPY





#### 4.4.1.2 Zonal Structure

The zonal structure from CFRPM 6.1 Model was used in its entirety for the CFX 3.0 model. For the purpose of evaluating the new corridors from the OCX Master Plan, traffic analysis zone disaggregation was needed as the project alignments and supporting roads were added. In Orange County, the southeast portion of the county was modified to incorporate the project alignments and new developments in the study area. Orange County TAZ zones ranging from 883 to 1,077 in CFRPM model were evaluated, 74 zones in all. After disaggregation there were 93 zones, a total of 19 new zones were added in this area of the county. In Osceola County, the entire county was evaluated with zones numbered 1,101 to 1,350, 250 zones in all. After disaggregation there were 349 zones, with 99 new zones added. A summary of the zone disaggregation is presented in Table 4-4.

Table 4-4  
Zone Disaggregation Summary

	Old Zone Count	New Zone Count	New Zones Added
Orange County	74	93	19
Osceola County	250	349	99
<b>Total</b>	<b>324</b>	<b>442</b>	<b>118</b>

#### 4.4.1.3 Socio-Economic Data

FKA developed socio-economic estimates for the following components of the TAZ datasets for the development of the traffic and revenue study:

1. Population and Dwelling Units
  - a. Single Family Dwelling Units and Population
  - b. Multi-Family Dwelling Units and Population
2. Hotel/Motel Units (includes Timeshare) and Hotel/Motel occupants
3. Employment
  - a. Industrial
  - b. Commercial
  - c. Service
4. Student Enrollment

In addition, FKA conducted an analysis of developments of regional impact (DRIs) which impact development patterns and the allocation of population and employment throughout the Study Sub-area.

The baseline analysis involved a detailed evaluation of each county's property appraiser data by land use type intersected with the TAZs via GIS shape files. FKA used Woods & Poole Economics data, the University of Florida Bureau of Economics and Business Research (BEBR), the Florida Department of Business and Professional Regulation licensure data, ESRI, and DataStory as the sources of its 2015 population control totals and base year hotel/motel population. FKA base year control total for population in Orange County is 2.9% more than BEBR estimates and 1.3% higher than Woods & Poole estimates, as shown in Table 4-5. The FKA base year control total for population in Osceola County 5.1% higher than BEBR estimates and 2.0% higher than Woods & Poole estimates.

Table 4-5  
Population Control Totals

	Countywide (2015)				Study Area (2015)	
County	W&P	BEBR	FKA	ESRI	DataStory	Final - FKA
Orange	1,272,090	1,252,396	1,288,130	1,258,251		
Osceola	317,680	308,327	323,993	305,855	301,498	323,993
Orange (Study Area) *					104,318	106,795
*Orange Study Area – not entire County Source: W&P: Woods & Poole 2016 Source: BEBR: University of Florida, BEBR Medium (Volume 49, Bulletin 174, January 2016) Source: FKA: Fishkind and Associates, Inc. Source: ESRI: ESRI BAO 2017 Source: DataStory: (ESRI TAZ Data) *partial county						

FKA used Woods & Poole Economics data, ESRI, and DataStory as the sources of its 2015 employment control totals. FKA base year control total for employment in the study portion of Orange County is 7.7% of Woods & Poole's total Orange County employment estimate in 2015. FKA base year control total for employment in Osceola County is 2.49% more than Woods & Poole estimates as shown in Table 4-6. The FKA base year control total for population in Osceola County 5.1% higher than BEBR estimates and 2.0% higher than Woods & Poole estimates.



Table 4-6  
2015 Employment Control Totals

Data Source		Employment (2015)				Percentages			
	County	Industrial	Commercial	Service	Total	Industrial	Commercial	Service	Total
W&P	Orange (Entire Cnty)	142,080	217,700	601,420	961,200	14.8%	22.6%	62.6%	100.0%
	Osceola	14,540	31,420	66,280	112,240	13.0%	28.0%	59.1%	100.0%
ESRI/ DataStory	Orange (Study Area)	25,101	12,443	21,957	59,501	42.2%	20.9%	36.9%	100.0%
	Osceola	11,912	30,853	59,423	102,188	11.7%	30.2%	58.2%	100.0%
FKA	Orange (Study Area)	30,954	15,344	28,109	74,407	41.6%	20.6%	37.8%	100.0%
	Osceola	14,902	32,202	67,930	115,034	13.0%	28.0%	59.1%	100.0%

Source: W&P: Woods & Poole 2016

Source: DataStory: DataStory (ESRI TAZ Data) for partial county

Source: FKA: Fishkind and Associates, Inc.

FKA verified existing school enrollments through county school board information, Florida Department of Education Public School data, supplemented by private school data and data for university enrollment within the Study Area. The 2015 school enrollment control totals are presented in Table 4-7.

Table 4-7  
2015 School Enrollment Control Totals

Location	2015 Students
Orange- Study Area	26,240
Osceola County	78,547
<b>Total</b>	<b>104,787</b>

Source: ESRI (2015) and FKA

#### 4.4.1.4 Network

The 2015 network was developed from the CFRPM 2015 network. First, the network was reviewed against the most recent transportation capital improvement plans to determine if certain projects were implemented in the time-period between 2010 and 2015. Using GIS and 2015 aerial imagery, the network facility types, speeds and capacities were checked, concentrating on expressway and arterial facilities, to ensure that the network was properly coded

to match existing conditions. Adjustments were made to the link attributes in the study area, including operating speed and capacity. Traffic count data was assembled from CFX, FDOT, county and municipal governments and reviewed for consistent growth at the stations. Again, the review of count stations focused on the arterial and higher facilities.

#### 4.4.1.5 Toll Rates

The toll rates collected on CFX and other toll facilities, including Florida's Turnpike Enterprise and Osceola County facilities, in 2015 were reviewed for use in the modeling process. At most toll location there are two toll rates: one for customers paying through electronic toll collection (ETC), i.e., E-PASS or SunPass; and the other for customers paying with cash. More precisely, the toll rates used in the model are the weighted average of the ETC and cash toll rates, where the ETC participation rate is the weight. Truck volumes are relatively low on CFX facilities and therefore not included as a model feature.

#### 4.4.1.6 Trip Generation

Several modifications were made to the trip generation model from CFRPM v. 6.1 to ensure a production-attraction balance at the county level. The Volusia Lifestyle Trip Generation Model is incorporated in the CFRPM 6.1 model to produce school trips in the remaining 10 counties. In running the CFX 3.0, school trips were missing in all counties but Volusia County, accounting for approximately 5% of the total trip productions. CDM Smith made corrections in CFX 3.0. It was determined that with the incorporation of the Lifestyle Trip Generation Model, a lifestyle model characteristic was not populated in two hundred zones, so no trips were generated from those zones. CDM Smith corrected the missing characteristics in those zones. CDM Smith also reconstructed the Special Generator model by removing hard-coded trips between major attractions, such as trips between Walt Disney World and the Kennedy Space Center. CDM Smith used Streetlight Data, Inc. origin-destination (OD) surveys to adjust/update the trip productions and attractions in the Special Generator Model for three major attractions (Walt Disney World, Universal, and SeaWorld) in Orlando.

In external trip models, the External to External (EE) and External to Internal (EI) were reviewed for count and growth rates. Using a Streetlight Data Inc. OD Survey of external station locations, including Turnpike in Osceola County, I-95 in Indian River County, I-4 in Polk County and I-75 in Marion County, many EE Trips were reset to the travel patterns shown in the OD survey. The adjustments in the trip generation model produced reasonable results, consistent with the current traffic movements, other regional models, and with national averages.

#### 4.4.1.7 Trip Distribution

The trip distribution model from the CFRPM V 6.1 Model is the gravity model in which trips are distributed across TAZs based on the number of productions and attractions and the travel impedance, or generalized cost of travel, between origins and destinations. The distribution step produces trip length frequency distributions (TLFD), which show the probability of trips at different trip lengths. CDM Smith found that the trip lengths were in many cases too long, creating



illogical trip patterns between counties. CDM Smith adjusted friction factors in CFX 3.0 model to make the model TLFDS replicate the data from the National Household Transportation Survey. This was completed for each of the 11 counties and 6 trip purposes in the CFX 3.0 model and resulted in a significant improvement to the representation of intercounty movements.

The CFRPM 6.1 model also produced very high volumes on Interstate 4 at the Polk County/Osceola County line. CDM Smith reconstructed friction factors for Interstate 4 at the external station, because not enough trips from the Lakeland area were being attracted to the external station (heading to Tampa) and instead were being attracted to the Orlando Metro area. CDM Smith used the data from Streetlight to reconstruct and calibrate the TLF of Interstate 4 in Polk County.

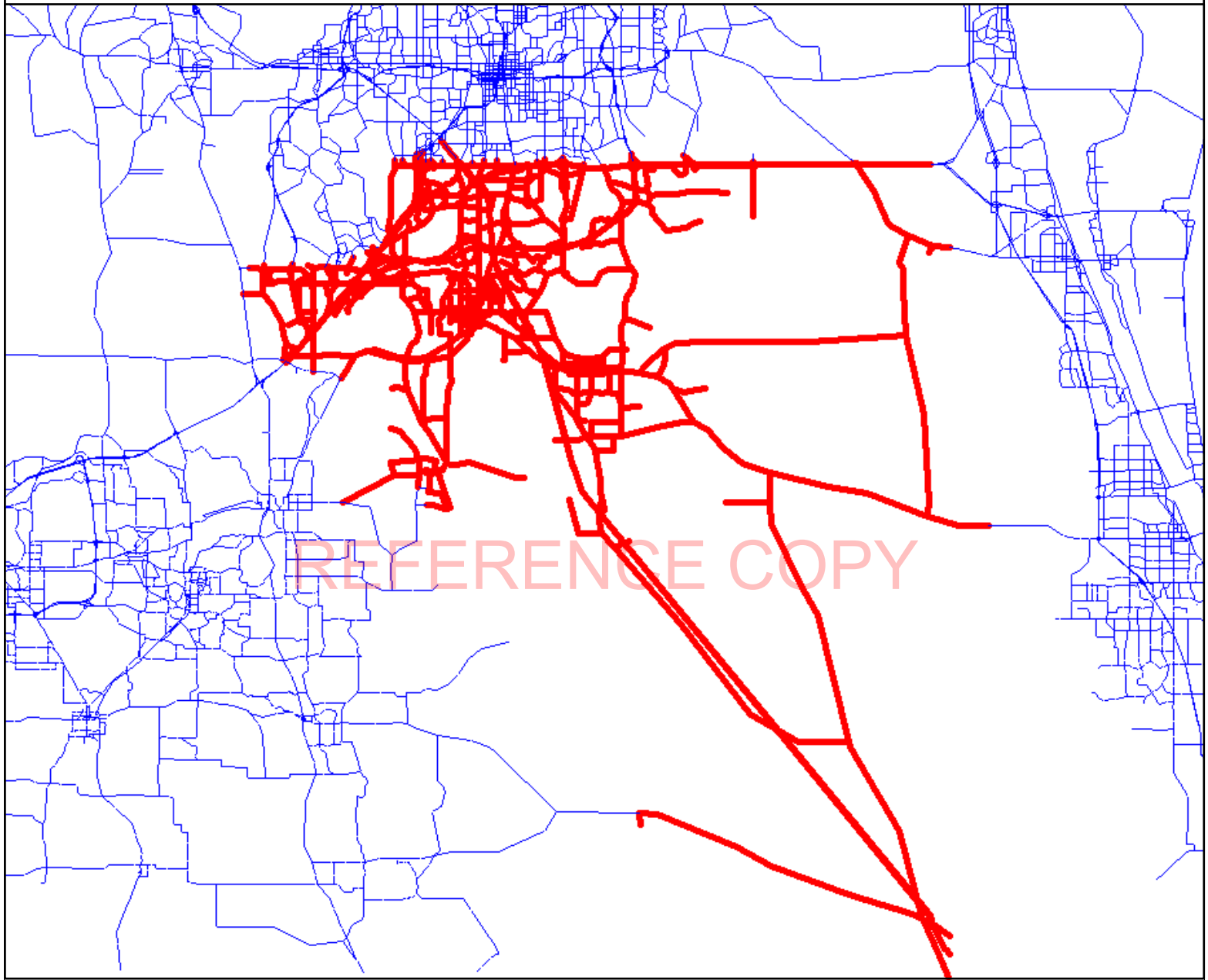
Other updates to the trip distribution model include K-factor adjustments for Interstate 4, Interstate 95, and Florida's Turnpike to adjust trip patterns from Polk External Stations to Brevard and Indian River County Zones, Brevard and Indian River County External Stations to Polk County zones, as well as Polk County Internal-Internal Trips.

#### 4.4.1.8 Mode Choice and Trip Assignment

The mode choice model from CFRPM 6.1 (a nested logit model) was reviewed and included in CFX 3.0 without update. This model separates (splits) the total number of trips into low occupancy vehicles (LOV), high occupancy vehicles and premium transit (fixed rail and express bus) classes. The trip assignment model from CFRPM 6.1 implements equilibrium assignment techniques, with the Bureau of Public Roads (BPR) volume-delay function to estimate the effect of volume on link speeds and CTOLL to estimate the effect of toll on travel impedance. The assignment model from CFRPM 6.1 was included in CFX 3.0 with update.

#### 4.4.1.9 Validation

The purpose of the CFX 3.0 model was to evaluate the viability of the OCX Master Plan projects. The validation of the CFX 3.0 model concentrated on a subarea including the South Orange County and Osceola County study area. The facilities highlighted in red on Figure 4-3 were the facilities of focus for the validation effort. The main validation test for trip assignment is the ratio of model predicted volumes (base year) to traffic counts, known as volume/count (v/c) ratio.





As with the regional planning model, two ways to evaluate the goodness of fit are the ratio of model predicted v/c ratio and root-mean squared error (RMSE). Table 4-8 contains a summary of the v/c ratios and RMSE for various categories of links in the 2015 model, including expressway facilities (Facility types 11-17) and toll facilities (Facility types 91-98). In the global model, S.R. 429 had volumes higher than the counts, with an RSME of 155.09% and v/c ratio of 2.21, which is improved to a RSME of 95.12% and v/c ratio of 1.95 in the subarea model. This issue will need to be addressed in further refinements of this model.

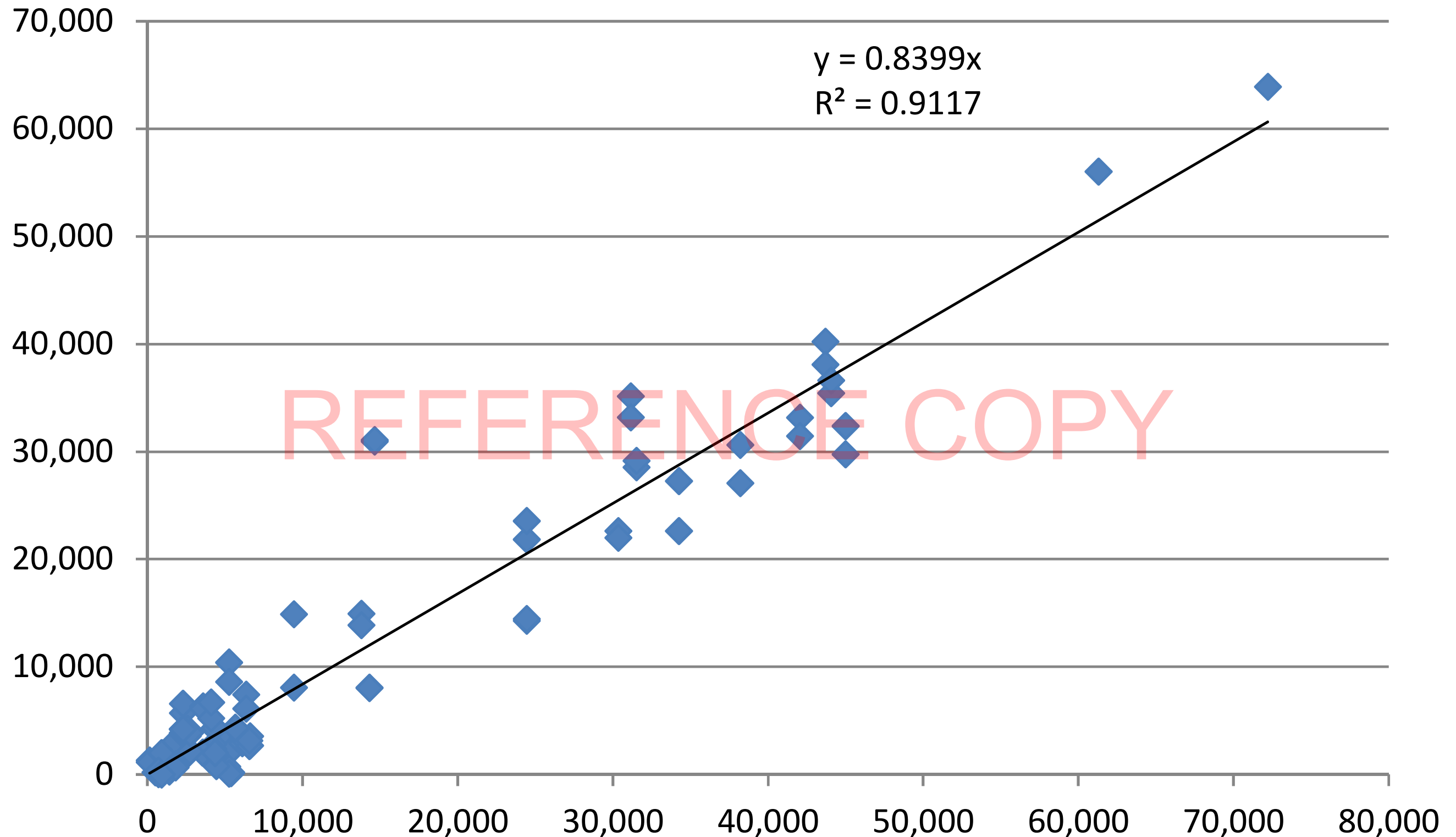
Table 4-8  
CFX 3.0 Validation: High Capacity Facilities

	Volume/Count (v/c)	% RMSE
Expressway Facilities	1.24	27.42%
Toll Facilities	1.17	27.78%
Expressway Facilities in Subarea	1.03	11.18%
Toll Facilities in Subarea	1.12	26.32%
Source: Results_v64_new_counts_new_resultsv2.xlms		

Figure 4-4 contains a graph showing the model predicted traffic volumes against traffic counts on CFX facilities in the Sub Area. The correlation between the two is very close ( $R^2 = 0.8933$ ).

REFERENCE COPY

# CFX FACILITIES





#### 4.4.2 CFX 3.0 Future Year Models

By starting with the CFX 3.0, the future year model retains all of the updates and enhancements created for that model and with additional model improvements in the Study Area. The forecast years are set to 2025, 2035 and 2045, consistent with the requirements for design of the OCX Projects. The information for these years was, in general, taken from the data sets describing FY 2020, FY 2030 and FY 2040 in the CFRPM 6.1.

##### 4.4.2.1 Socio-Economic Data – Base Forecast

The socio-economic data forecasts for the 2025, 2035 and 2045 were based on the CFRPM 6.1 socio-economic data forecasts from years 2020, 2030 and 2040. The assumption was that the forecasts were prepared by the local governments and MPO prior to the recent economic recession and using the data sets and moving the horizon out five years would be a conservative approach for the entire model. As previously referenced, special attention was given to the southeast portion of Orange County and all of Osceola County for the population, employment and school enrollment data (ZDATA1 and ZDATA2 files). Fishkind completed an independent socio-economic data forecast for these two counties in the model.

Based on the adjusted 2015 socio-economic data estimated by Fishkind, the socio-economic data sets were forecast for the 2025, 2035 and 2045 horizon years. Fishkind first evaluated the historic growth rates in population, employment, and school enrollment since 1990. Considering the population growth rates over the last 25 years, Fishkind also employed two data sources: Bureau of Economic and Business Research and Woods & Poole, both of which provide estimates of population at a county control total level. The range of population forecast are provided in Table 4-9.

Table 4-9  
Population Forecasts

	County	2015	2025	2035	2045
FKA	Orange (Entire Co.)	1,288,130	1,591,844	1,839,786	2,034,767
	Osceola	323,993	436,348	537,245	634,366
Source: Fishkind and Associates, Inc.					
W&P	Orange	1,272,090	1,488,110	1,724,150	1,963,435
	Osceola	317,680	405,340	514,260	638,550
Source: Woods & Poole 2016					
BEBR	Orange	1,252,396	1,551,400	1,799,100	2,004,000
	Osceola	308,327	427,900	525,700	605,800
Source: University of Florida, BEBR Medium (Volume 49, Bulletin 174, January 2016)					

To determine the control total for the portion of Orange County identified in the study area, Fishkind also employed ESRI data, Datastory, which has data at a TAZ level. Fishkind evaluated the data, converted to the zone structure for the CFX 3.0 model and determined a control total for

the portion of Orange County in the study area. The population forecasts control totals for the study area are shown in Table 4-10. The compound average annual growth rates for population by county in the 30-year forecast period are 2.66% and 2.26% for partial Orange County and Osceola County, respectively.

Table 4-10  
Population Control Totals for Study Area

	County	2015	2020	2025	2035	2045
FKA	Orange (Partial Co.)	106,795		151,181	193,563	234,908
	Osceola	323,993		436,348	537,245	634,366
Source: Fishkind and Associates, Inc.						
Datastory (ESRI)	Orange	104,318	123,544			
	Osceola	301,498	352,817			
Source: DataStory (ESRI TAZ Data)						

Employment control total forecasts were estimated in a similar fashion, using Woods & Poole, ESRI and DataStory sources. Woods & Poole data is the preferred employment data source because it includes full and part-time workers by place of work as well as proprietors, home employment, military and miscellaneous workers. The employment forecasts control totals for the study area are shown in Table 4-11.

Table 4-11  
Employment Control Totals for Study Area

	County	2015	2025	2035	2045
FKA	Orange (Partial Co.)	74,403	102,576	129,397	154,687
	Osceola	115,035	156,213	192,114	227,612
Source: Fishkind and Associates, Inc.					
W&P	Orange (Entire Co.)	961,200	1,173,890	1,394,735	1,618,825
	Osceola	112,240	145,110	184,260	229,040
Source: Woods & Poole (2016)					

The Employment/ Population (E/P) ratio is a good way to ensure consistency of employment growth in the forecast. The Woods & Poole data E/P ratio is slightly higher than the E/P ratio for ESRI and DataStory, which has lower ratios in the study area, specifically in Orange County. The E/P ratio forecast estimated by Fishkind is presented in Table 4-12. Osceola County functions as a bedroom community to the Central Florida employment hub, mostly in Orange County, so a lower E/P ratio is consistent for the economy.



Table 4-12  
Study Area Employment to Population Ratios

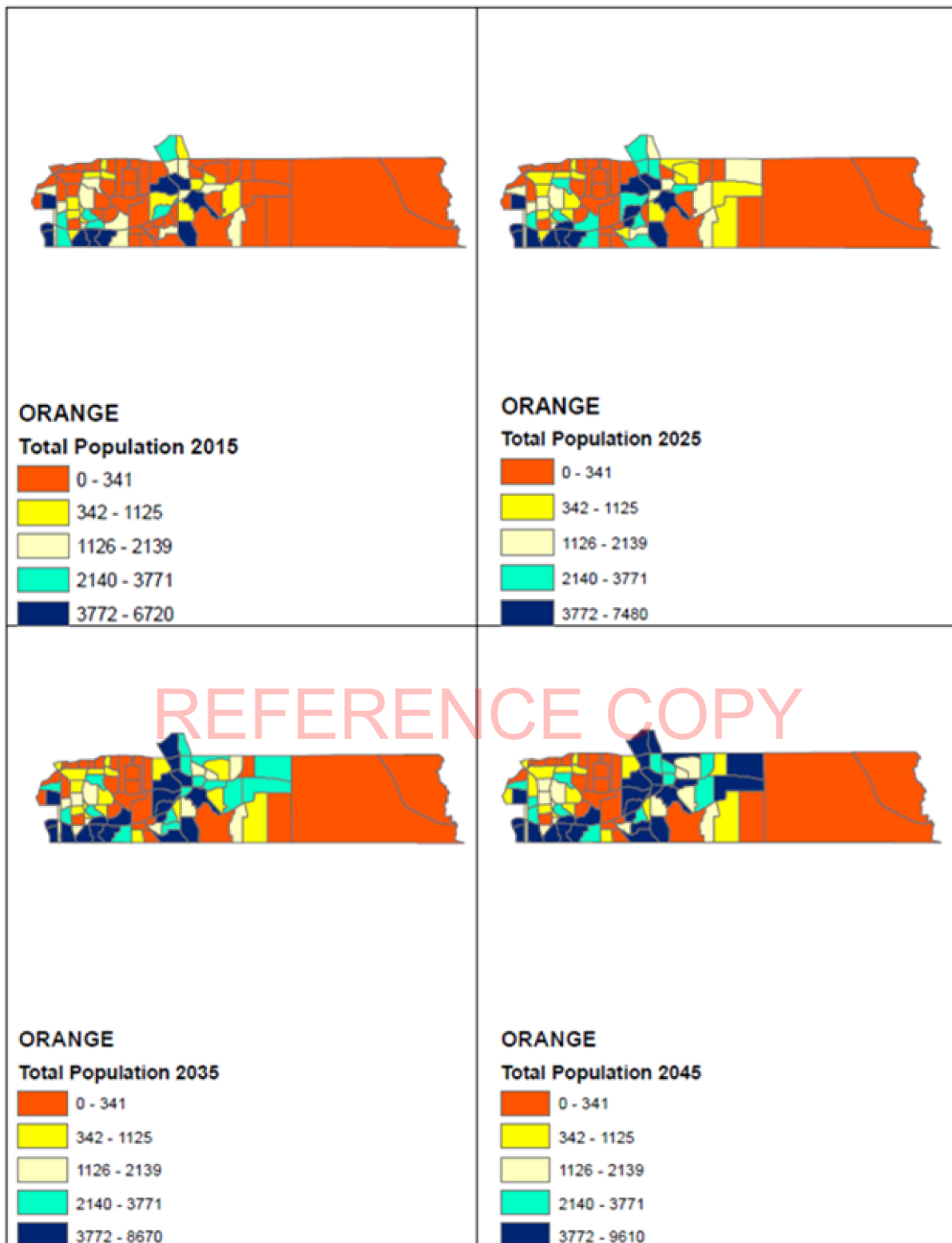
	County	2015	2025	2035	2045
EMP/POP Ratio	Orange (Partial Co.)	69.7%	67.9%	66.9%	79.6%
	Osceola	35.5%	35.8%	35.8%	35.9%

School enrollment forecasts were completed by geocoding the existing 2015 enrollments for k-12 students for public and private schools in the study area, analyzing the county specific detailed age profile forecasts, estimating the future control totals for each county and allocating the forecasted student enrollment based on each TAZs' share of student forecasts based on the 2015 percent allocation. The forecasts for school enrollment control totals are presented in Table 4-13.

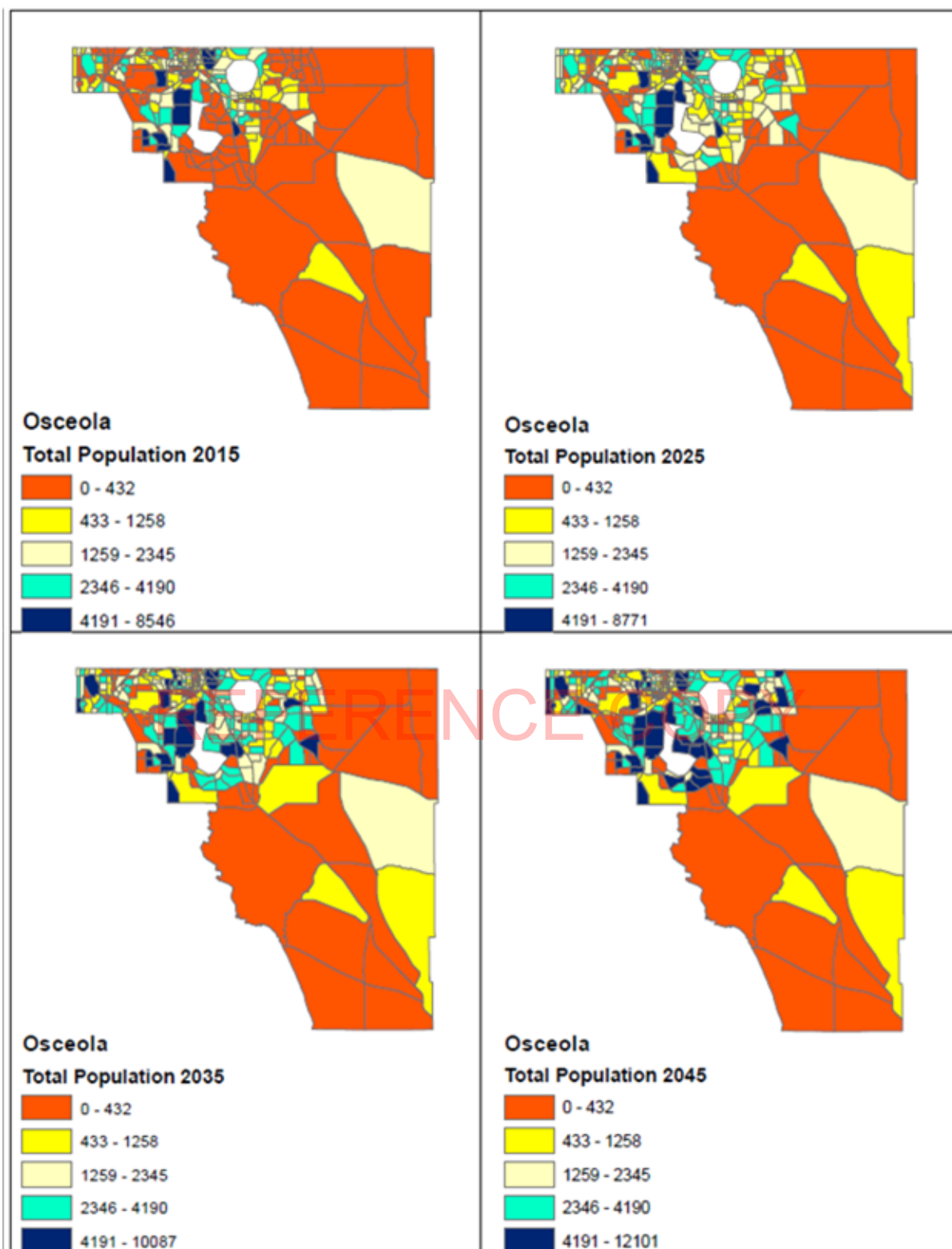
Table 4-13  
School Enrollment Control Total Forecasts

Location	2025 Students	2035 Students	2045 Students
Orange- Study Area	32,123	41,293	46,160
Osceola County	96,539	113,775	134,095
<b>Total</b>	<b>128,662</b>	<b>155,068</b>	<b>180,255</b>
Source: FKA			

With the control total forecasts developed, Fishkind used a land use allocation model to allocate the population and employment control total forecasts in the study area. Fishkind considered market characteristics including acres of developable vacant land, holding capacity of vacant land, developments of regional impact and other approved developments, utility and transportation access proximity, surrounding land use compatibility, and other variables to determine the attractiveness of development. Historic development patterns, using the DataStory TAZ level allocation, was also considered in the future year allocations. For the market characteristics, Fishkind creates an implicit "Index of Attractiveness," described as Super Zones of TAZs based on criteria likely to influence growth within the study area. The County control total forecasts were allocated to the super zones and checked for population shifts. This check ensures that not too much of the population or employment growth is shifted between the zones in the forecast periods. From there, the super zones are disaggregated to the TAZ level for application in the model. The distribution of population forecast in 2015 – 2045 are shown in Figure 4-5 for Orange County (portion) and Figure 4-6 for Osceola County.







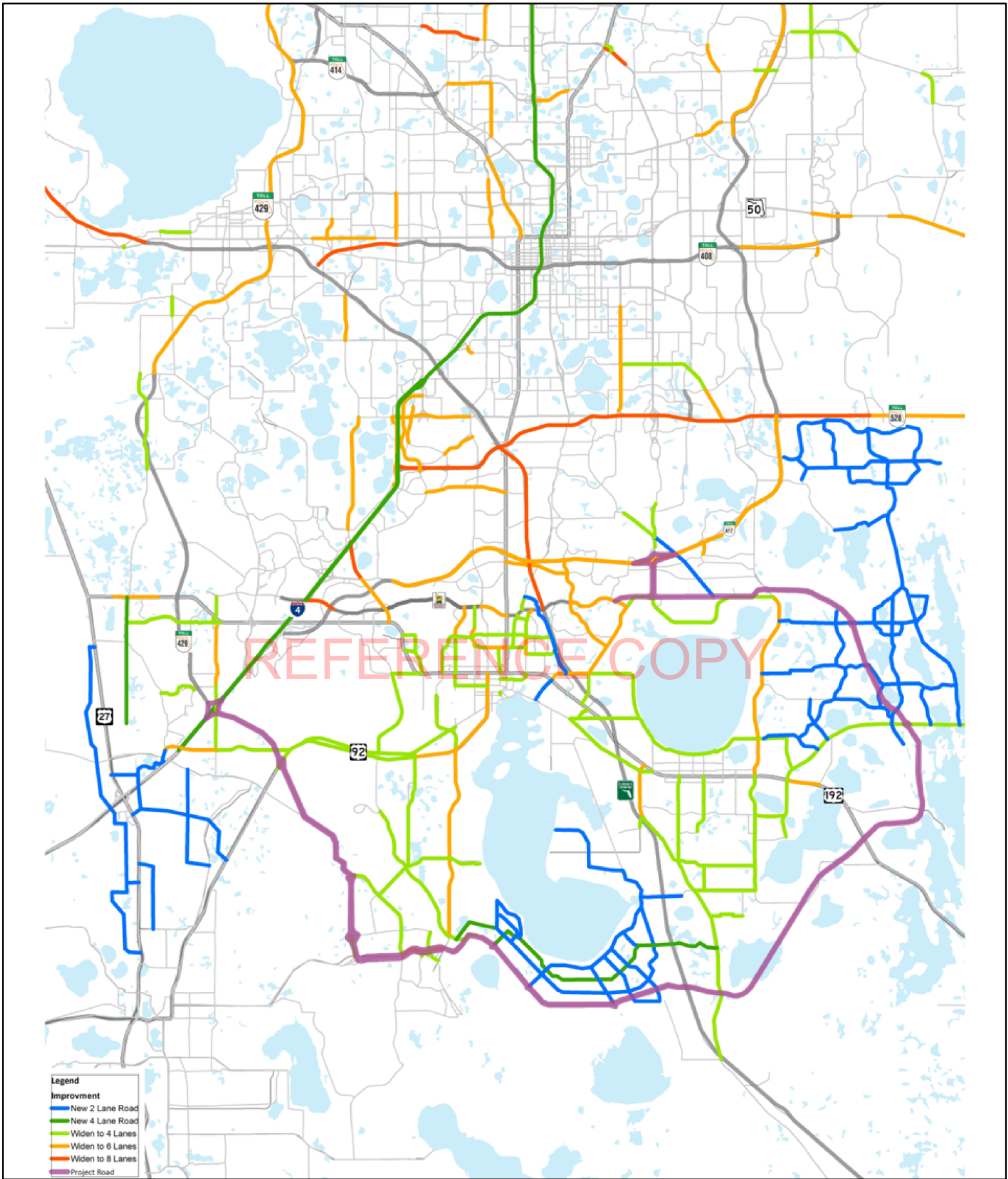
#### 4.4.2.2 Socio-Economic Data – Low and High Land Use Forecasts

In addition to this normal growth (base year forecast), Fishkind developed a low-side and high-side forecast of socio-economic data. These variations in land use and development take into consideration the probability of slow growth or housing booms in the 30-year horizon. Using 45 years of Florida population growth, Fishkind reviewed the history and created a frequency distribution with respect to the annual percentage change in population growth. Based on the frequency distribution and median growth rates, Fishkind recommended an adjustment to the existing forecasted growth rate of an additional 30% on the high side and a reduction in the existing forecasted growth of 20% on the low side.

#### 4.4.2.3 Network – Future Year Base Network (2025, 2035, 2045)

The future year networks in the model contain the transportation improvements identified in the CFX, Florida Department of Transportation (FDOT) and the county work programs, as well as the improvements included in the cost feasible plan from the long-range transportation plan (LRTP) for year 2040. In addition to these improvements, additional network was added, specifically in the high growth areas and the study area. As discussed in Section 4.4.1.2, to ensure proper loading and distribution of trips on the OCX Master Plan study corridor, there was significant TAZ disaggregation in the study area, specifically along the four study corridors. This TAZ disaggregation includes significant future roadway networks to support the study corridors and surrounding future development. For several of the study corridors, the TAZ structure in the surrounding area consisted of a handful of zones. The number of TAZs in Osceola County increased by over 40%, or an additional 99 zones, and the portion of Orange County increased by 26% or 19 zones. These zones are supported in part by a network of “development” roads or roads not considered in the LRTP or County transportation plans. The 2045 network improvements are highlighted on Figure 4-7, with the development roads mainly highlighted in blue. The 2025 and 2035 base networks were created from the 2045 network, and are based on improvements in the 2020 and 2030 networks from the CFRPM 6.1 model. The development roads were included in both the 2025 and 2035 base networks. While the No-Build alternative does not contain the OCX Master Plan projects, it does include the other improvements and development roads.





#### 4.4.2.4 Networks – Future Year Design and Revenue Networks

The traffic forecasts used for design are developed so that the projects would be adequately sized to serve customers through its useful life (30 years). The traffic forecasts used for revenue estimation are, on the other hand, created so that the projects would be able to produce the forecasted revenue, especially in the opening years. The traffic forecasts prepared for design purposes are therefore somewhat different from (higher than) the traffic forecasts prepared for revenue-estimation purposes. While the basic assumptions (including overall level and location of future socio-economic activity and toll amounts/values of time) are the same, the network assumptions near the project are somewhat different.

As such, a design network and a revenue network were developed for use in the design traffic and revenue traffic forecasts. The design networks were developed to maximize the amount of traffic on the OCX projects, so competitor roads are constrained. The revenue network were developed to maximize the local street utilization, i.e. planned improvements, higher speeds and capacities) and dampen the use of the toll facility.

To “maximize” the traffic on the project facilities in the design network, future improvements were limited to the 2025 LRTP network in Osceola County. More specifically, any improvements identified in in Osceola County after 2025 were removed from the network for the 2035 and 2045 networks. In addition, the following 2025 improvements were removed from all of the design networks:

- Boggy Creek Road from Simpson Rd to Narcoossee Road: 2 to 4 lanes
- Cyrils Drive from Narcoossee Road to Absher Road: 2 to 4 lanes
- Simpson Rd from Osceola Parkway to Boggy Creek Rd: 2 to 4 lanes
- Lakeshore Blvd from Boggy Creek to Narcoossee Rd: 2 to 4 lanes
- US 192 from Partin Settlement Rd to Brown Chapel Rd: 4 to 6 lanes
- Narcoossee Road from Boggy Creek Road to US 192: 4 to 6 lanes
- Reaves Road from Poinciana Blvd to Pleasant Hill Rd: 2 to 4 lanes
- Poinciana Blvd from Crescent Lakes Way to Pleasant Hill Road: 2 to 4 lanes
- Lake Wilson Rd from Sinclair Rd to Osceola Polk Line Rd (CR 532): 2 to 4 lanes
- Osceola Polk Line Rd (CR 532) from I-4 to Old Lake Wilson Rd: 4 to 6 lanes

#### 4.4.2.5 Toll Rates

Future-year tolls in the project-specific model reflect current toll amounts and agency policies concerning future toll rate adjustments. The Build alternatives for the OCX Master Plan projects



were evaluated with and without tolls. For the analysis, the toll rate was set to \$0.18 per mile in 2018 for design traffic, consistent with the toll rate established for the Wekiva Parkway (S.R. 429). Toll rates were escalated at 1.5% per year according to the CFX Customer First Toll Policy.

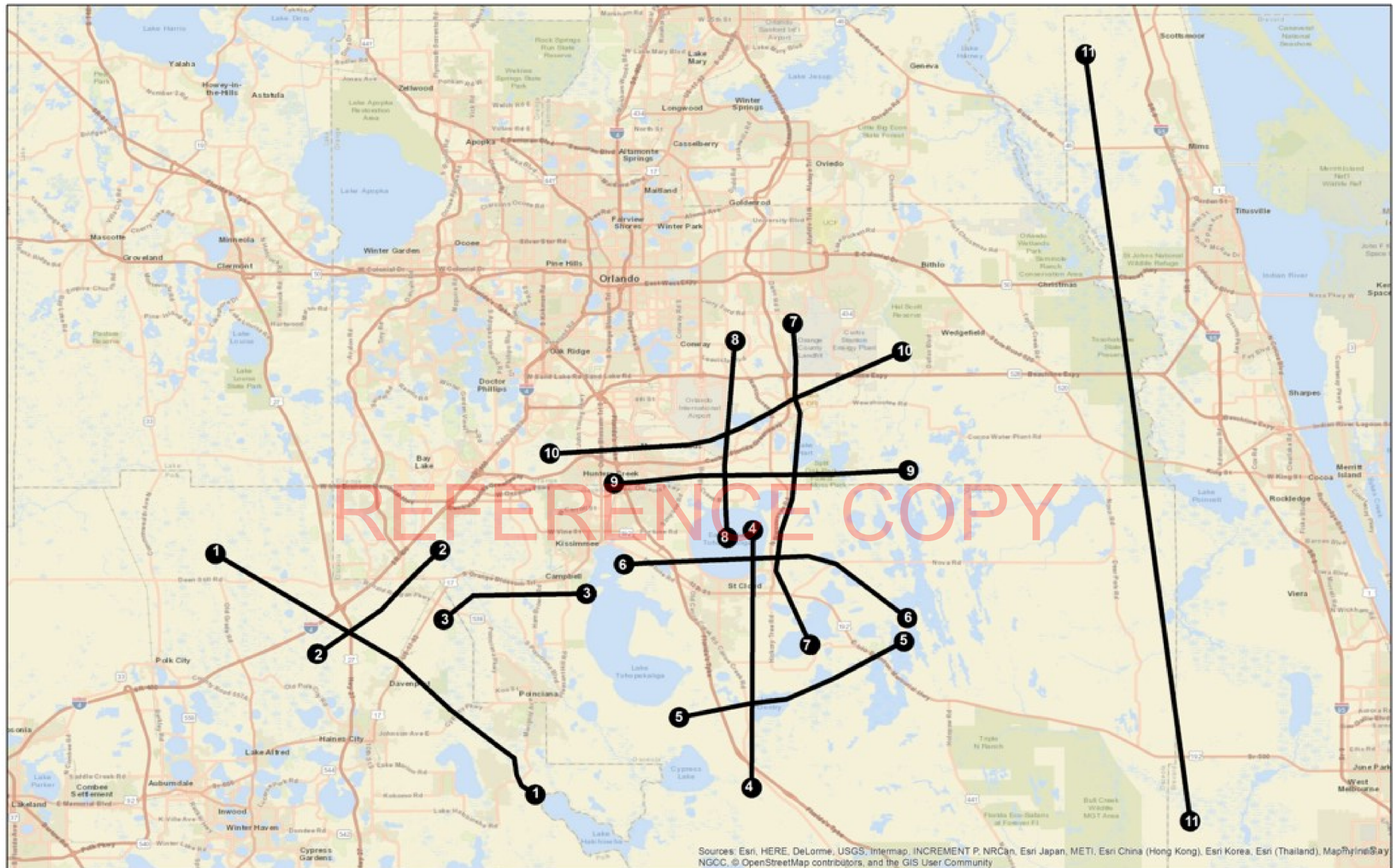
#### 4.4.2.6 Screen lines

A final measure of success in validation is the volume of traffic crossing the screen lines within the study area. Eleven screen lines were established in the model study area and v/c ratios are evaluated. Table 4-14 contains a summary of 2015 traffic counts, 2015 model-predicted traffic volumes, and volume to count ratios for each of the screen lines. The table also contains the 2045 volumes for the screen lines and compound annual average growth rates. The screen lines are shown on Figure 4-8.

Table 4-14  
Screen-Line Counts and Forecasts

Screen Line	2015			2045	
	Count	Volume	v/c	Volume	CAAGR
1	87,135	98,746	13.33%	163,355	1.7%
2	34,400	37,792	9.86%	90,105	2.9%
3	89,400	84,580	-5.39%	124,280	1.3%
4	88,881	80,947	-8.93%	162,475	2.3%
5	54,096	53,079	-1.88%	86,203	1.6%
6	118,000	136,319	15.52%	310,613	2.8%
7	106,246	93,387	-12.10%	246,506	3.3%
8	140,703	140,995	0.21%	282,295	2.3%
9	147,700	168,999	14.42%	325,155	2.2%
10	249,305	266,849	7.04%	504,555	2.1%
11	62,900	64,656	2.79%	126,928	2.3%
<b>Total</b>	<b>1,178,766</b>	<b>1,226,349</b>	<b>4.04%</b>	<b>2,422,470</b>	<b>2.3%</b>

There is a good fit between model and counts on these screen lines with v/c ratios all between +/- 15%.





#### 4.4.3 2045 Project Alternatives AADT Volumes

For study purposes, the Northeast Connector Expressway was studied with all four projects included in the network and assumed built. So, for the “No-Build” alternative, the remaining three OCX projects were assumed to be constructed and part of the background network. Using the calibrated model, traffic forecasts were developed for the year 2045 to coincide with the design year of the project. The full model was run using the Design Network, Medium socio-economic data set for the Build No- Toll option to attract the most amount of traffic to the study area. Using the Trip Table from this full model run, assignment only runs were completed for each of the Build options or project tolled alternative alignments. The FDOT Model Output Conversion Factor (MOCF) of 0.98 was applied to the model segment volumes to estimate 2045 AADT. The MOCF for Orange and Osceola Counties was obtained from the FDOT Florida Transportation Information (FTI) webpage. As the purpose of the study was to develop conceptual design traffic forecasts for the Northeast Connector Expressway, only the segment volumes are provided. Projected AADT volumes are provided in Section 6 for the various alternatives, including the “No-Build” alternative.

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## 5. Design Criteria

### 5.1 Basic Design Criteria

Development of this project will be guided by the basic design criteria listed in Table 5-1.

Table 5-1  
Basic Design Criteria

Design Element	Design Standard	Source
<u>Design Year</u>	2045	- Scope of Services
<u>Design Vehicle</u>	WB-62FL/WB-67	- AASHTO 2004, Pg. 18 - FDOT PPM Vol. I, p 1-19
<u>Design Speed</u> Rural Freeway Urban Freeway Urban Arterial Rural Arterial Other Frontage Road Service Road Access Road Ramp Directional Loop	70 mph 60 mph 45 mph 55 mph 45 mph 50 mph As appropriate 50 mph 30 mph	- FDOT PPM Vol. I, Tbl. 1.9.1, 1.9.2
<u>Lane Widths</u> Freeway Ramp 1-lane 2-lane Turning Roadway Arterial Collector/Service Road Bicycle Rural/Urban	12-ft 15-ft 24-ft Case dependent 12-ft 12-ft 5-ft/4-ft (designated or undesignated)	- FDOT PPM Vol. I, Tbl. 2.1.1, 2.1.2, 2.1.3 & 2.14.1





Design Element	Design Standard		Source
<u>Roadside Slopes</u> Front slope  Front slope (curb & gutter)  Back slope  Back slope (curb & gutter)	Fill Height (ft)	Rat	- FDOT PPM Vol. I, Tbl. 2.4.1  - (CFX Policy) <sub>3</sub> Use 1:3 slopes, avoid 1:2 slopes except where as necessary
	0.0-5	1:6	
	5-10	1:6 to CZ & 1:4	
	10-20	1:6 to CZ & 1:3	
	> 20	1:2 with guardrail (Use 10-ft bench at half the height of fill)	
	All	1:2 not flatter than 1:6	
	All	1:4 or 1:3 w/ standard width trap. ditch & 1:6 front slope	
		1:2 not flatter than 1:6	
<u>Max. Grade / Max. Change in Grade</u> Freeway (Rural / Urban) Ramp Directional Loop Arterial Rural Urban Collector Frontage Road/Service Road  Min. Grade Curb & Gutter	Max. Grade	Max Change in (70 mph/ 60 mph) 0.20% / 0.40%	- FDOT PPM Vol. I, Tbl. 2.6.1, 2.6.2          - FDOT PPM Vol. I, Tbl. 2.6.4
	3.0%		
	5.0%	0.60%	
	7.0%	1.00%	
	3.5%	0.50%	
	6.0%	0.70%	
	6.5% to 9.0%	-	
	8.0%	0.70%	
	0.3%	-	
<u>Minimum Stopping Sight Distance</u> (Grades 2.0%)	Dsgn. Speed (mph)	Distance (ft)	- FDOT PPM Vol. I, Tbl. 2.7.1
	70	730	
	60	570	
	55	495	
	50	425	
	45	360	
	30	200	
<u>Decision Sight Distance</u> (Per avoidance maneuver)	Dsgn. Speed (mph)	Distance (ft)	- AASHTO Exh. 3-3
	70	780-1445	
	60	610-1280	
	55	535-1135	
	50	465-1030	
	45	395-930	
	30	220-620	



<u>Horizontal Curve Length</u> Freeway Others	V = Design Speed 30V (15V min.) 15V (400-ft min.)		- FDOT PPM Vol. I, Tbl. 2.8.2a
<u>Max. Curvature (Degree of Curve)</u> Freeway DS = 70 mph Rural DS = 60 mph Urban Arterial DS = 55 mph Rural DS = 45 mph Urban Collector DS = 45 mph Frontage Road DS = 50 mph Service Road Ramp DS = 50 mph Directional	3° 30' 00" 5° 15' 00" 6° 30' 00" 8° 15' 00" 8° 15' 00" 8° 15' 00" 8° 15' 00" 24° 45' 00"		- FDOT PPM Vol. I, Tbl. 2.8.3
Design Element	Design Standard		Source
<u>Superelevation Transition</u> Tangent Curve Spirals	80% (50% min.) 20% (50% min.) (Curves < 1°30' 00" do not use spirals) <sub>4</sub>		- FDOT PPM Vol. I, Sect. 2.9  - (CFX Policy) <sub>3</sub>
<u>Superelevation Rates</u> Freeway DS = 70 mph Rural DS = 60 mph Urban Arterial DS = 55 mph Rural DS = 45 mph Urban Collector DS = 45 mph Frontage Road DS = 50 mph Service Road Ramp DS = 50 mph Directional DS = 30 mph Loop	$e_{max}$	SE Trans. Rate	- FDOT PPM Vol. I, Tbl. 2.9.1, 2.9.2, 2.9.3, 2.9.4 - Design Standards Ind. No. 510,511 - AASHTO Exh. 3-28
	0.10 0.10	1:200 <sub>5</sub> 1:225	
	0.10 0.05	1:225 1:150	
	0.05 0.10	1:150 1:200	
	0.10 0.10	1:200 1:150	
<u>Vertical Curves</u> Length, $L = KA$	Dsgn. Speed (mph)	K-value	
		Crest	Sag
	70	401	181
	60	245	136
	55	185	115
	50	136	96
	45	98	79
	30	31	37
<u>Minimum Lengths</u> Freeway DS = 70 mph Rural DS = 60 mph Urban Arterial DS = 55 mph Rural DS = 45 mph Urban Collector DS = 45 mph Frontage Road DS = 50 mph Service Road Ramp DS = 50 mph Directional DS = 30 mph Loop	Crest	Sag	- FDOT PPM Vol. I, Tbl. 2.8.5, 2.8.6 - AASHTO Exh. 3-72 (crest), 3-75 (sag)  - CFX Policy <sub>3</sub> Note: FDOT K-values for "ALL OTHER FACILITIES" are desirable
	500-ft 400-ft	400-ft 300-ft	
	350-ft 135-ft	250-ft 135-ft	
	135-ft 300-ft	135-ft 200-ft	
	300-ft 90-ft	200-ft 90-ft	

<u>Ramps</u> Ramp Terminals Length Taper      Minimum Spacing Entrance to Exit <sup>6</sup> Exit to Entrance to Entrance Exit to Exit Turning Roadways	<u>Entrance</u> “Parallel-Type” 900 to 1200-ft 300-ft (25:1)	<u>Exit</u> “Taper-Type” 550-ft (2°to 5°, 3°desirable)	- Design Standards Ind. No. 525 - AASHTO Pg. 850-856      - AASHTO Exh. 10-68, Pg. 844
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Design Element	Design Standard	Source
<u>Lane Drop Taper</u>	$L = WS$ (DS = 45 mph) $L = WS^2/60$ (DS $\leq$ 40 mph)  50:1 min, 70:1 desirable (freeways)	- Design Standards Ind. No. 525,526  - AASHTO Pg. 818
<u>Clear Zone</u> Freeway DS = 70 mph Rural DS = 60 mph Urban Arterial DS = 55 mph Rural DS = 45 mph Urban Collector DS = 45 mph Frontage Road DS = 50 mph Service Road Ramp DS = 50 mph Directional 1 to 2-lane DS = 30 mph Loop 1 to 2-lane	36-ft  30-ft 4-ft (Curb & Gutter) As appropriate 4-ft (Curb & Gutter) 24-ft  14-ft to 24-ft 10-ft to 18-ft	- FDOT PPM Vol. I, Tbl. 2.11.11
<u>Vertical Clearance</u> Over Roadway Over Railroad Sign over Roadway Over Water	16'-6" 23'-6" 17'-6" 12'-0" min.	- FDOT PPM Vol. I, Tbl. 2.10.1 to 2.10.4, Sect. 2.10.1
<u>Limited Access Limits</u> Rural Urban Crossroad overpass/no interchange	300-ft min. 100-ft min 200-ft	- FDOT PPM Vol. I, Sect. 2.14.1



## Ramp Operations

- Two thousand (2,000) ft. between entrance and exit terminals - full freeways
- Six hundred (600) ft. between exit and entrance terminals
- Entrance Ramp Taper of 900 ft. (1° - convergence)
- Exit Ramp Taper of 550 ft. (3° - divergence)

## Right-of-way

- Ten (10) ft. from back of walls or limit of construction.
- Two (2) ft. from back of sidewalk on frontage roads.
- Drainage and construction easements as required.
- Ninety-four (94) ft. from ramp or mainline traveled way desirable for limited access right-of-way.
- Limited access right-of-way limits per Index 450.

## 5.2 Drainage Design Criteria

The Northeast Connector basins are open basins all located within Osceola County and all are within the Upper Kissimmee River watershed that is a part of the Lake Okeechobee Basin Management Action Plan (BMAP). None of the basins discharge to Outstanding Florida Waters (OFW). WBIDs that fall within the Northeast Connector basins are Class 3F and are as follows: 3174E (Trout Lake), 3174D (Coon Lake), 3176B (Alligator Lake Outlet), 3176A (Lake Lizzie), 3176 (Alligator Lake), 3173C (Lake Tohopekaliga Drain -south segment), 3180B (South Port Canal), 3177B (Lake Gentry Outlet), 3177 (Lake Gentry), 3177A (Brick Lake), 3179 (S-36A), 3174 (Lake Center), and 3174F (Lake Center Outlet). WBIDs 3173C Lake Tohopekaliga Drain – South Segment and 3180B South Port Canal are impaired for nutrients.

The criteria used for design is set by the Central Florida Expressway Authority (CFX), South Florida Water Management District (SFWMD), Florida Department of Environmental Protection (FDEP), Florida Department of Transportation (FDOT), and Osceola County. The most stringent criteria governs.

Resources are listed below:

- ERP Applicant's Handbook Volume 2, SFWMD, May 22, 2016
- SFWMD Right of Way Criteria Manual for Use of Works or Lands of the District, August 12, 2013
- Osceola County Land Development Code, Ch 4 – Site Design and Development Standards, July 17, 2017
- FDOT Drainage Manual, January, 2018
- FDOT Drainage Design Guide, January, 2018
- FDOT Design Manual, January, 2018
- NRCS Urban Hydrology for Small Watersheds – TR-55, June 1986

### 5.2.1 Pond Design

The ponds are sized for at least the six lane condition and assumes a fully paved median width, resulting in a total impervious width of 156 feet for the mainline. All ponds are assumed to be wet detention.

- Peak Runoff Rates
  - Calculated using SCS Runoff Curve Number Method
- Attenuation Criteria
  - SFWMD: The post developed peak rate of discharge must not exceed the pre-developed peak rate of discharge for the 25 year/72 hour storm.
    - The precipitation for the 25 year / 72 hour storm is 10 inches based on Isohyetal Maps in Appendix C of the ERP Applicant's Handbook Volume 2, Figure C-8 (Rainfall amounts range from 9-11 on this figure for the study area.)
  - Osceola County: The post developed peak rate of discharge must not exceed the pre-developed peak rate of discharge for the 10 year/72 hour storm.
    - The precipitation for the 10 year / 72 hour storm is 8 inches based on Isohyetal Maps in Appendix C of the ERP Applicant's Handbook Volume 2, Figure C-7
- Treatment Volume Criteria
  - Water Quality: Provide wet detention volume for the greater of:
    - First inch of runoff from the project area
    - 2.5 inches times the percentage of impervious
- Nutrient Reduction Criteria
  - BMAP – Lake Okeechobee (impaired for Phosphorus)
    - Limit post development discharge loading rates to meet pre development rates.
    - Presumptive criteria- An additional 50% water quality treatment is required in all the basins as a best management practice to address impaired waters (per previous project experience, SFWMD Permit No. 48-01642-P. To be verified at pre-application meeting
  - WBID 3173C & 3180B - Limit post development discharge loading rates to meet pre development rates.
- Control Devices/Bleed-down
  - Maximum discharge of ½" of the detention volume in 24 hours
  - Devices greater than 6 square inches cross sectional area, 2" minimum dimension
- Pond Configuration
  - 0.5 AC minimum
  - Minimize short circuiting
  - Minimum width of 100 feet for linear areas in excess of 200 feet



- Maximum side slope 1V:4H from top of bank to three feet below the control elevation per Osceola County.
- 20 feet wide maintenance easement provided beyond control elevation and connect to a public road.
- One foot of freeboard between design high water level and the minimum berm elevation.
- Permanent Pool Volume provide a minimum 6 foot depth

### 5.2.2 Floodplain Impacts

FEMA has developed Flood Insurance Rate Maps (FIRM) for Osceola County. The following maps effective, June 18, 2013, cover the project limits: 12097C0115G, 12097C0120G, 12097C0257G, 12097C0260G, 12097C0265G, 12097C0270G, 12097C0280G, 12097C0285G, 12097C0290G, 12097C0295G, 12097C0325G, 12097C0410, 12097C0425G, and 12097C0430G have established the 100-year floodplain limits of Zone A and Zone AE in the vicinity of the project limits.

- SFWMD: No net encroachment into the floodplain, between the average wet season water table and that encompassed by the 100-year event.
  - Compensating storage will be provided for the impacts.

### 5.2.3 Cross Drains

The maximum allowable headwater for design flood frequency is at or below the edge of the shoulder

- Peak Runoff Rates
  - Basins 0 to 600 Acres: Rational Method
    - IDF Curves Zone 7
  - Basins 600+ Acres: USGS Regression Equations
    - Florida Region 3
- Design Frequency
  - High Use or Essential Highway: 50 Year Storm
  - FEMA regulated Floodways: 100 Year Storm
    - Regulated floodways that cross the proposed project corridors are C-33 and C-34.
    - FEMA No-Rise Certification will be required for proposed crossings.

## 5.3 Canal Criteria

- Regulated Canals that fall within the corridor basins are the C-32C (Trout-Joel Canal), C-33 (Alligator-Gentry Canal), and C-34 (Canoe Creek) of the Upper Kissimmee River watershed and are within the Alligator Lake and Gentry Lake Basins that discharge to Lake Cypress.
  - Use defined tailwaters for each canal

- Subject to current navigation requirement and require a Department of Transportation (Federal) Permit
  - FDOT: The minimum vertical clearance must be 6 feet above the control elevation.
  - SFWMD
    - Horizontal
      - Center Span – 25 feet clear bent spacing, measured perpendicular to channel.
      - Approach Spans – 20 feet between faces of bents
    - Vertical
      - 6 feet above the seasonal high optimum water control elevation or 2 feet above the design surface elevation, whichever produces the higher low member elevation.
- Unregulated Canals
  - FDOT: The minimum vertical clearance must be between the design flood stage and low member of a bridge is 2 feet. No drift clearance required for box culverts. If navigable the minimum vertical clearance that must be provided is 6 feet above the Normal High Water.

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## 6. Mobility Alternatives Evaluation

This section describes the mobility alternatives that were considered for the Northeast Connector Expressway.

### 6.1 No-Build Alternative

The No-Build Alternative assumes the Northeast Connector Expressway is not constructed. Only the projects included in the MPO Cost Feasible 2040 LRTP are assumed to be provided. The results of the No-Build Alternative analysis form the basis of the comparative analysis for each of the Build Alternatives presented later in this section.

#### 6.1.1 Projected Design Year Traffic

The projected 2045 (i.e., Design Year) AADT and V/C ratios for the No-Build traffic conditions are summarized in Table 6-1. For ease of comparison, the same information is presented for all alternatives (i.e., segments of the Northeast Connector Expressway are shown with no traffic). Interchange locations (e.g., along US 192 [SR 500]) specify which alternative includes an interchange at that location.

Without the Northeast Connector Expressway, several roadways will operate with a V/C ratio greater than 1.0 (see highlighted cells in Table 6-1), which signifies the demand exceeds the roadway capacity and significant congestion will result. Roads over capacity include Narcoossee Road (CR 15) (north of Rummell Road), US 192 (SR 500) (from Narcoossee Road [CR 15] to Old Melbourne Highway [CR 500A]), and Nova Road (CR 532) (from Pine Grove Road to the Northeast Connector Expressway interchange location).

Table 6-1  
Projected 2045 No-Build Traffic Conditions

Roadway		# Of Lanes Assumed	Type Assumed <sup>(2)</sup>	No Build AADT	No Build V/C <sup>(3)</sup>
From <sup>(1)</sup>	To <sup>(1)</sup>				
Northeast Connector Expressway					
Cyrils Dr (A,B,C,D,E)	Jack Brack Rd (A,B,C,D,E)	4	Freeway	0	0.00
Jack Brack Rd (A,B,C,D,E)	Nova Rd (CR 532) (B,C,D,E)	4	Freeway	0	0.00
Nova Rd (CR 532) (B,C,D,E)	US 192 (SR 500) (A,B,C,D,E)	4	Freeway	0	0.00
US 192 (SR 500) (A,B,C,D,E)	Nolte Rd (A)	4	Freeway	0	0.00
Nolte Rd (A)	Deer Run (A)/Hickory Tree (CR 534) (B,C)	4	Freeway	0	0.00
Deer Run (A)/Hickory Tree (CR 534) (B,C)	Canoe Creek Rd (CR 523) (A,B,C,D,E)	4	Freeway	0	0.00
Canoe Creek Rd (CR 523) (A,B,C,D,E)	Florida's Turnpike (A,B,C,D,E)	4	Freeway	0	0.00
Florida's Turnpike					
Canoe Creek Service Plaza	NEC Interchange (A,B,C,D,E)	4	Freeway	45,500	0.63
NEC Interchange (A,B,C,D,E)	Friars Cove Road	4	Freeway	45,500	0.57
Friars Cove Rd	Kissimmee Park Rd	4	Freeway	45,500	0.57
Canoe Creek Road (CR 523)					
Lake Cypress Rd	NEC Interchange (C,D,E)	4	Class I	4,000	0.10
NEC Interchange (C,D,E)	NEC Interchange (A,B)	4	Class I	4,000	0.10
NEC Interchange (A,B)	New Road to West	4	Class I	9,300	0.22

Roadway		# Of Lanes Assumed	Type Assumed <sup>(2)</sup>	No Build AADT	No Build V/C <sup>(3)</sup>
From <sup>(1)</sup>	To <sup>(1)</sup>				
New Road to West	Mildred Bass Road	4	Class I	40,000	0.96
Mildred Bass Road					
Canoe Creek Rd	Story Rd	2	Class II	11,100	0.75
Narcoossee Road					
US 192 (SR 500)	Rummell Rd	4	Class I	27,700	0.66
Rummell Rd	Cyrils Dr	4	Class I	46,400	1.11
Cyrils Dr	Boggy Creek Rd	4	Class I	66,400	1.59
Boggy Creek Rd	Osceola Parkway Ext.	6	Class I	58,400	1.09
Osceola Parkway Ext.	SR 417	6	Class I	58,400	1.09
Hickory Tree Road (CR 534)					
US 192 (SR 500)	Nolte Rd	4	Class I	14,600	0.35
Nolte Rd	Deer Run Rd	4	Class I	20,300	0.49
Deer Run Rd	NEC Interchange (B,C)	4	Class I	4,300	0.10
NEC Interchange (B,C)	US 192 (SR 500)	2	Class I	4,300	0.23
Nolte Road					
Hickory Tree Rd (CR 534)	NEC Interchange (A)	4	Class I	16,000	0.38
NEC Interchange (A)	US 192 (SR 500)	2	Class I	15,500	0.83
US 192 (SR 500)					
Narcoossee Rd (CR 15)	Nova Rd (CR 532)	4	Class I	48,000	1.15
Nova Rd (CR 532)	NEC Interchange (A)	4	Class I	42,300	1.01
NEC Interchange (A)	Old Melbourne Highway (CR 500A)	4	Class I	42,300	1.01
Old Melbourne Highway (CR 500A)	NEC Interchange (B,C,D)	4	Class I	28,700	0.69
NEC Interchange (B,C,D)	Hickory Tree Rd (CR 534)	4	Class I	28,700	0.69
Hickory Tree Rd (CR 534)	NEC Interchange (E)	4	Uninterrupted	28,600	0.39
NEC Interchange (E)	US 441	4	Uninterrupted	22,600	0.32
Old Melbourne Highway (CR 500A)					
US 192 (SR 500)	Lake Conlin Rd	2	Class I	6,300	0.34
Nova Road (CR 532)					
US 192 (SR 500)	Pine Grove Rd	2	Class I	17,400	0.94
Pine Grove Rd	NEC Interchange (B,C,D,E)	2	Class I	20,400	1.10
NEC Interchange (B,C,D,E)	East	2	Uninterrupted	15,700	0.47

Notes:

1) Letter (i.e., A, B, C, D, E) references relevant corridor associated with location. The corridors are identified in Section 6.6.

2) Type of facility used to determine daily capacity in FDOT Generalized Annual Average Daily Volumes

3) Capacity based on FDOT Generalized Annual Average Daily Volume at level of service (LOS) E

## 6.2 Transportation Systems Management and Operations

The Transportation Systems Management and Operations (TSM&O) alternative considers safety and minor operational improvements to existing facilities that may include construction of additional turn lanes, intersection and traffic signal improvements, improvements to signing and pavement markings, and/or implementation of intelligent transportation systems (ITS) technology.



Typical TSM&O improvements can improve the efficiency of the roadway system by up to ten percent; however, it should be noted that the capacities utilized in this analysis have been increased by five percent to reflect the provision of separate right-turn lanes at signalized intersections. Thus, typical TSM&O improvements could increase roadway capacity to address conditions with a No-Build V/C ratio of 1.05.

Additional improvements, such as the use of alternative intersection treatments, have the potential to provide more capacity – up to 25 percent more than typical conditions. These alternative intersection treatments include the following:

- Continuous Flow Intersections
- Median U-Turns
- Restricted Crossing U-Turns
- Quadrant Roadway Intersections

Based on the No-Build V/C conditions identified in Table 6-1, it is possible that TSM&O improvements, when combined with alternative intersection treatments, could provide adequate capacity to serve the projected design year traffic within the study area. However, no TSM&O alternative can fulfill the need and purpose for the project. Therefore, no TSM&O options were identified for the study.

### **6.3 Transit, Intermodal, Multi-Modal Alternatives**

The development of alternative mobility programs included an assessment of Mass Transit Technology and Intermodal Facilities. This assessment began with a review of the CFX Multi-Modal Policy. Potential multi-modal improvements were identified and reviewed for consistency with the CFX Multi-Modal Policy.

#### **6.3.1 CFX Multi-Modal Policy**

On March 9, 2017, the CFX Board amended the 2040 Master Plan to include the following policy statement pertaining to multi-modal projects:

*Fund or partner on multi-modal initiatives where revenue generated from the investment equals the project cost or where toll user benefits are equal to or exceed the project cost. Candidate projects must comply with CFX's Master Bond Resolution and CFX's enabling legislation.*

This policy recognized two types of multi-modal initiatives:

1. Projects with direct benefits to CFX toll users – “Cost Equals User Benefits”
2. Projects meeting financial or revenue tests but not of direct benefit to CFX toll users – “Cost Equals Revenue”

#### **6.3.2 Potential Multi-Modal Improvements**

The Center for Urban Transportation Research (CUTR) conducted a Multi-Modal Investment Assessment for CFX and identified the following types of multi-modal improvements as candidate

projects. Note that any potential projects would also need to meet CFX financial and/or revenue requirements.

- Rapid transit, trams, or fixed guideways located within the CFX right-of-way
- Projects within Osceola County (service in Polk County will require an invitation from Polk County)
- Project consistent with the MPO LRTP
- Intermodal facility/facilities within CFX right-of-way, or multi-modal corridor/corridors within CFX right-of-way, which improve the level of service on the expressway system. Connections to the CFX system can also be constructed up to one mile from the system.

As defined by CFX (in the 2040 Master Plan), the term “intermodal” usually means facilities, such as when transportation modes and services are brought together to promote the seamless transfer of travel between two or more modes. This can include, but is not be limited to, vehicles and parking facilities (including park-and-ride lots); transit (e.g., buses, local rail, and intercity rail); taxis; rental cars; and shuttle vans. Furthermore, the term “multi-modal” typically refers to a corridor serving a combination of cars and trucks, buses, fixed guideways, trams, and bicycles.

The CUTR assessment identified seven potential projects for further consideration through a multi-modal project development and evaluation program. The list below illustrates the types of projects recommended for consideration.

- SR 408: Bus Rapid Transit/Express Bus Treatment/Higher Education Connectivity
  - Supported by the MPO LRTP and would support new downtown UCF Campus
- I-Drive/Florida Mall to OIA via SR 528: High Capacity Transit Evaluation
  - Supported by the MPO LRTP and CFX 2040 Master Plan (improvement to SR 528)
- SR 417: Express Bus Accommodation
  - Included in the MPO LRTP and CFX 2040 Master Plan (improvement to SR 417)
- Area Wide: Parking Structure Funding Feasibility
  - Alleviate expressway congestion and potential revenue generation
- Area Wide: Integrated Regional Fare/Toll Services
  - Facilitate regional mobility and potential revenue benefit or neutrality
- Area Wide: Variable Pricing Study/Future Funding Options
  - Congestion mitigation measure and potential multi-modal funding stream
- Area Wide: Transit Joint Development Opportunities
  - Contribution to regional mobility and potential revenue generation

Based on this information, the following types of multi-modal improvements are candidates for inclusion in the Northeast Connector Expressway Mobility Programs.

- Multi-modal improvements in the MPO LRTP
- New multi-modal improvements in CFX right-of-way
- New multi-modal improvements within one mile of CFX right-of-way



#### 6.3.2.1.1 Potential MPO LRTP Multi-Modal Improvements

The MPO 2040 LRTP includes three transit projects wholly or partially in Osceola County. These include the US 192 (SR 500) Bus Rapid Transit (from US 27 in Lake County to downtown Kissimmee), the Kissimmee Circulator (within Kissimmee), and SunRail (from near US 17-92 at Poinciana Boulevard to north into Orange, Seminole, and Volusia counties). These projects are not within one mile of the Northeast Connector Expressway; therefore, they are outside the limits established by the Master Bond Resolution. Based on this review, there are no multi-modal transportation improvement candidate projects within the MPO LRTP to include in the Northeast Connector Expressway Mobility Programs.

#### 6.3.2.2 Potential New Multi-Modal Improvements

While no multi-modal improvements are in the MPO LRTP, it is possible for new multi-modal improvements to be developed by CFX within the right-of-way of a planned expressway; however, the multi-modal improvement would need to meet CFX financial and/or revenue requirements. Currently, LYNX and SunRail require financial assistance (i.e., state, federal, and local funding) to cover expenses. Therefore, it is unlikely that new rapid transit, trams, or fixed guideways would meet CFX's financial and revenue requirements. Based on this review, there are no multi-modal transportation improvement candidate projects to include in the planned right-of-way for the Northeast Connector Expressway.

#### 6.3.2.3 Potential New Multi-Modal Improvements within One Mile of CFX Right-of-Way

Potential multi-modal improvements within one mile of the CFX right-of-way need to benefit CFX system users. However, no multi-modal improvements are viable within the Northeast Connector Expressway right-of-way. If rapid transit within the Northeast Connector Expressway right-of-way was viable, additional transit, bicycle, and pedestrian improvements, which improve connections to the rapid transit stations, could be considered. Park-and-ride lots are one potential intermodal improvement; however, these would only meet the CFX Multi-Modal Policy financial requirements if the expressway segment demand is exceeding capacity to the point that removing a toll-paying vehicle from the expressway benefits other users (i.e., decreasing the level of congestion, increasing travel speeds, and increasing level of service). Initial travel demand modeling indicates that no segments will experience congestion to the point that a park-and-ride lot would provide appropriate relief to meet the CFX Multi-Modal Policy requirement. Based on this review, there are no multi-modal transportation improvement candidate projects to include within one mile of the Northeast Connector Expressway.

### 6.3.3 Recommended Multi-Modal Considerations

Based on this review, there are currently no multi-modal improvements recommended for consideration as part of the mobility program alternatives. As described in the CUTR Multi-Modal Investment Assessment, CFX is in the beginning stages of the multi-modal financier partnership model. Characteristics supportive of this model include densely developed areas with limited ability to provide additional highway capacity. Thus, while portions of the CFX service area are supportive of this model, the expansion of expressways into Osceola County is not. There will likely

come a time when multi-modal considerations will be appropriate for this area; however, it is premature to consider them now. Furthermore, while the OCX Master Plan includes a 400-foot typical section which includes additional space for multi-modal capacity, the technological advancements being made in transportation (i.e., automated vehicles) make it likely that CFX's current typical section for expressways will be able to accommodate additional modes in the future.

## **6.4 Tolloed Limited-Access Alternative**

Constructing a tolled limited-access expressway is a potentially viable response to the project need and purpose.

## **6.5 Corridor Development Process**

### **6.5.1 Re-evaluation of Previous Study Corridors**

Section 1.4 Previous Studies Related to the Project provided a discussion of the three previous reports that were related to the Northeast Connector Expressway. These reports provided a basis for the beginning of the development of alternative corridors for this study.

### **6.5.2 Development of New Corridors**

The process for identifying alternative corridors for evaluation consists of the following steps:

- Prepare an aerial base map of the study area
- Conduct a GIS-based Land Suitability Map (LSM) process to identify social, natural, and physical constraints
- Develop the corridor typical section
- Identify reasonable corridor alignments that:
  - Conform to CFX design criteria; and
  - Minimize impacts to the social, natural, and physical constraints.

#### **6.5.2.1 Base Map Development**

An aerial base map was prepared for the study area that depicts the existing road network, community facilities, existing and planned developments, environmental features, and major utilities. This map is shown on Figure 6-1.

#### **6.5.2.2 Land Suitability Map**

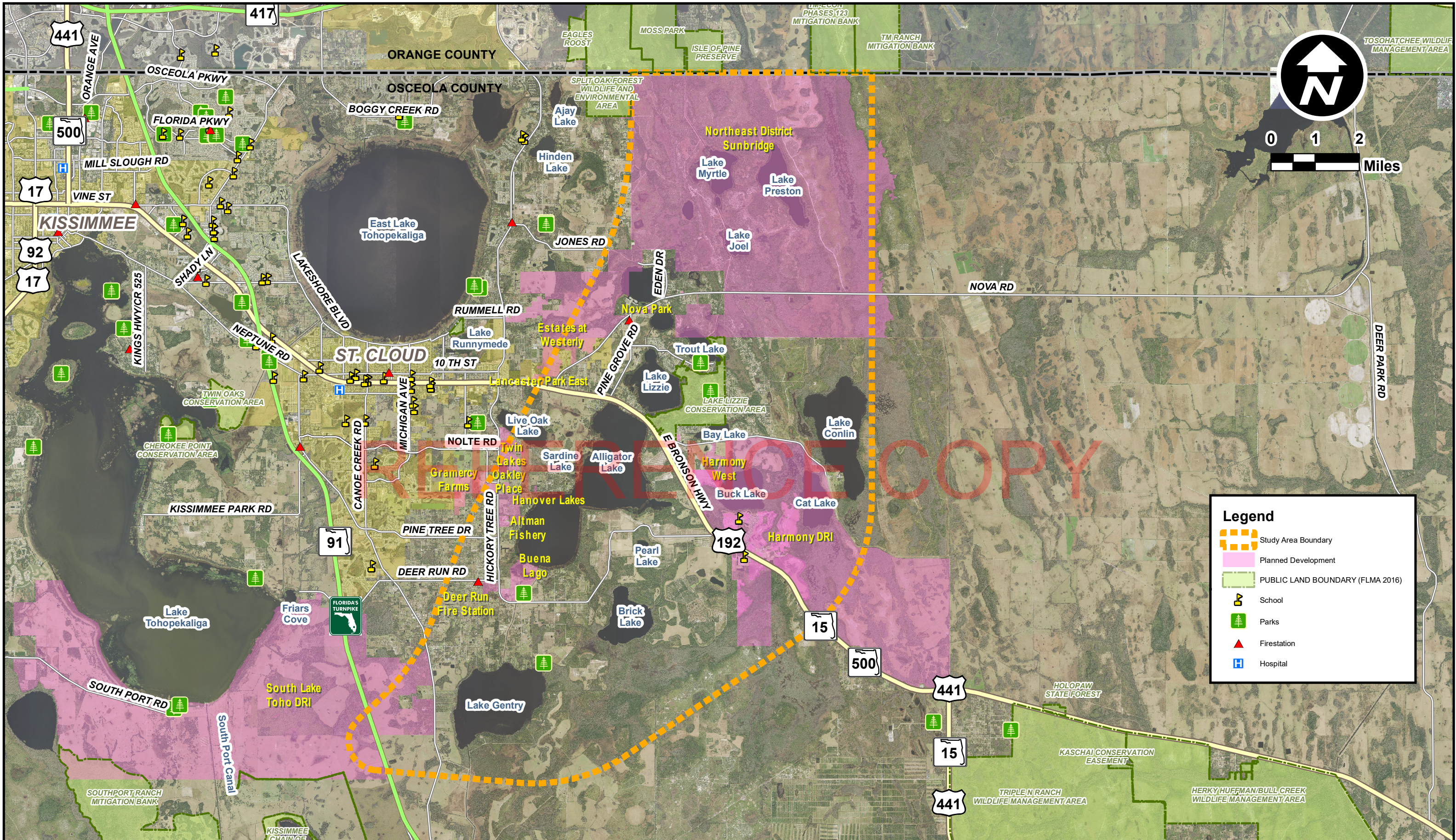
An LSM is used to help identify and select corridors that are an optimal fit within a study area. Publicly available GIS data is used to identify the locations of documented sensitive resources (e.g., historic and archaeological sites, recreational areas, wetlands, and species) which may be in or around the study area. By overlaying the GIS data with a map of the study area, it is possible to develop corridors that have a reduced impact on these sensitive resources. The utilization of LSM for this project assists in identifying several areas of constraint which should be avoided in the development of the evaluation corridors.

The data used to further evaluate the project corridor's social, cultural, natural, and physical environmental impacts was derived from GIS, literature, and field reviews where appropriate.

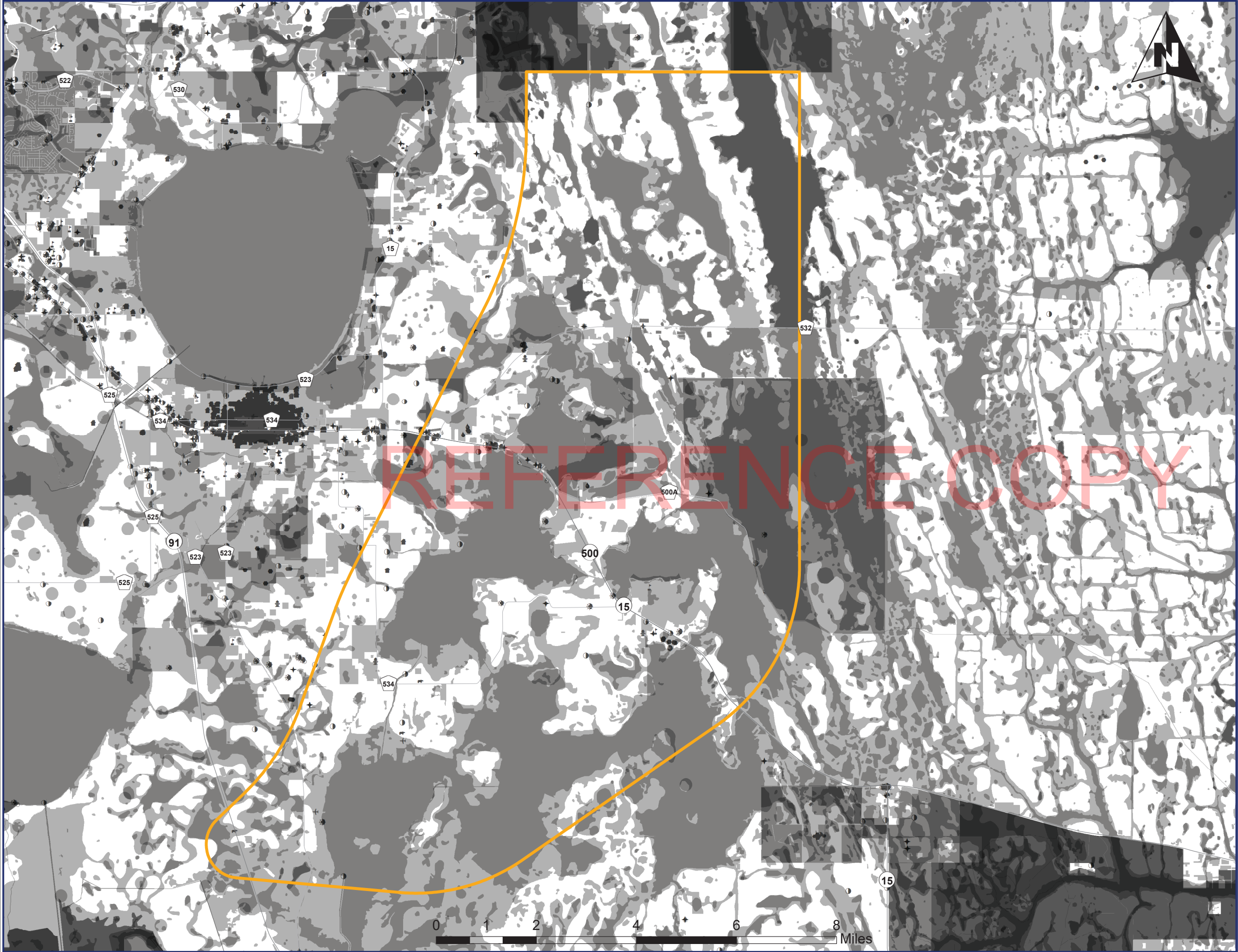
Various GIS datasets within the Florida Geographical Data Library, the SFWMD, the SJRWMD, the USFWS, the FWC, and City and County data sources were utilized. In addition, windshield field reviews and literature reviews were performed to verify key project corridor constraints. Figure 6-2 shows the LSM and the GIS layers used to produce the map.

REFERENCE COPY









- Legend**
- Project Limits
- SOCIAL LAYERS**
- Schools
  - Fire Department
  - Law Enforcement
  - Hospital
  - Airports
  - Planned Unit Developments
  - Religious Center
  - Government Building
  - Low Density Res - 110-119
  - Medium Density Res - 120-129
  - High Density Res - 130-139
- NATURAL LAYERS**
- Bear Nuisance Report
  - Wading Bird Rookeries
  - Red Cockaded Woodpecker Area
  - Gopher Tortoise Relocation Site
  - Skink Suitability Area
  - Scrub-Jay Habitat
  - Mitigation Banks
  - Eagle Nest
  - FEMA SHFA
  - Outstanding Florida Waters
  - LULC Rangelands - 300
  - LULC Water - 500
  - LULC Wetlands - 600
- CULTURAL LAYERS**
- SHPO Structures
  - Greenways & Trails
  - Wildlife Management Areas
  - Parks
  - FMLA Areas
  - Non-SHPO Cemeteries
  - SHPO Cemeteries
  - Resource Groups
  - WMD Acquired Lands
  - LULC Recreational Lands - 180
- PHYSICAL LAYERS**
- EPA RCRA Sites
  - Closed Hazardous Waste Facilities
  - Toxic Release Inventory
  - Solid Waste Facility
  - Petroleum Contamination
  - Wastewater Facility
  - Water Supply - Community
  - Water Supply - Noncommunity
  - STCM Storage Tank
  - SWAPP Areas
  - Sinkholes
  - EPA Superfund Site
  - Regulated Air Emissions
  - Dry Cleaners
  - LULC Industrial Areas - 150-159
  - LULC Electrical Power Facilities - 831
  - LULC Water Supply - 833
  - LULC Sewage Treatment - 834
  - LULC Landfill - 835

## 6.6 Corridor Narrative

As part of the preliminary analysis for the Northeast Connector Expressway Feasibility Study, eight corridor alignments have been identified for evaluation. These alternative corridor alignments are shown on Figure 6-3. Figure 6-3 also highlights an area where six of the alternative corridor alignments converge. This area is referred to as the Micro-Area and is generally from south of US 192 (SR 500) to north of US 192 (SR 500). Figure 6-4 shows the detail of the Micro-Area. These alternative corridor alignments within the Micro-Area have been identified as Corridor–Cyan, Corridor–Magenta, and Corridor–Yellow.

The three corridor alignment segments within the Micro-Area were developed to avoid or minimize various impacts to the social, cultural, natural, and physical environment within the Micro-Area. Corridor–Cyan was developed to minimize impacts to Harmony, a planned development east of US 192 (SR 500) and west of Buck Lake, while reducing the curvature of the corridor alignment. Corridor–Cyan crosses a portion of Alligator Lake. Corridor–Magenta was developed to avoid crossing Alligator Lake and minimize impacts to Harmony. This corridor alignment introduces the most horizontal alignment curvature. Corridor–Yellow was developed to avoid crossing Alligator Lake and to reduce the horizontal alignment curvature in comparison with Corridor–Magenta. This corridor impacts the northwest corner of the planned Harmony West Phase 1 development.

Each corridor segment within the Micro-Area connects to longer corridor alignments that are to the north and south of the Micro-Area. By selecting one of the corridor alignment segments within the Micro-Area, the overall number of corridor alignment alternatives being considered for further evaluation can be reduced from eight to five. To this end, the East of Alligator Lake Micro-Area Corridor Analysis Technical Memorandum (Inwood Consulting Engineers, Inc., 2017) was prepared. The technical memorandum documents the evaluation of the three corridor alignment segments within the Micro-Area and recommends one of the corridor segments within the Micro-Area to be carried forward for further evaluation. The Technical Memorandum is contained within the project files. The results of the Micro-Area evaluation were summarized in a matrix shown in Table 6-2.

The Technical Memorandum recommended eliminating Corridor–Cyan and Corridor–Magenta from further consideration. Corridor–Cyan was recommended for elimination from further consideration based on costs, a High rating for threatened and endangered species, and a ranking of 3 for public input in comparison with the other corridors. Corridor–Magenta was recommended for elimination from further consideration based on costs in comparison with Corridor–Yellow. It was recommended that Corridor–Yellow be carried forward for further evaluation. The corridors recommended for further consideration are shown on Figure 6-5 and are designated as Corridor A – Red, Corridor B – Red/Yellow, Corridor C – Blue/Cyan/Yellow, Corridor D – Blue/Brown/Yellow, and Corridor E – Blue/Yellow. These corridors are described below.







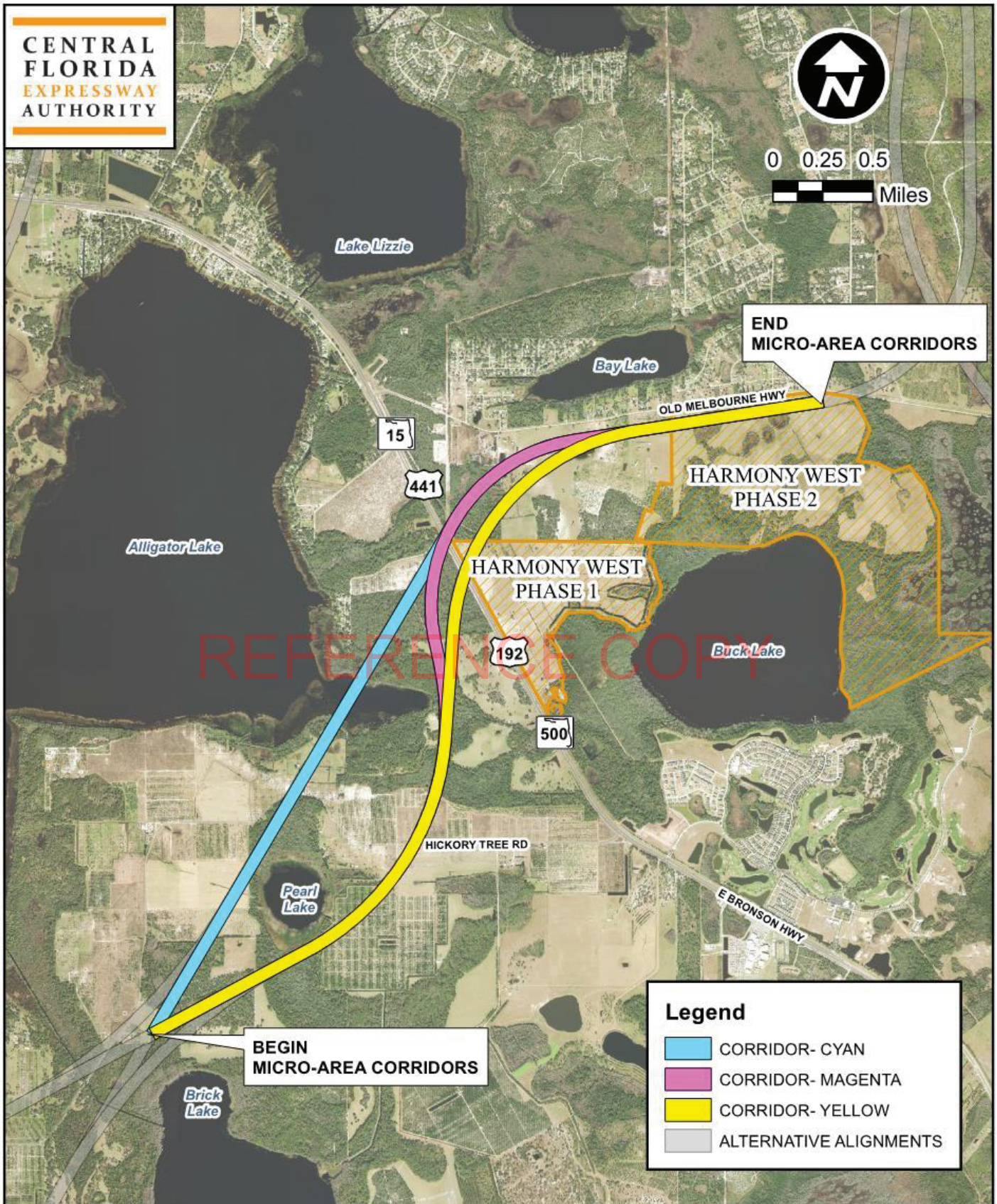
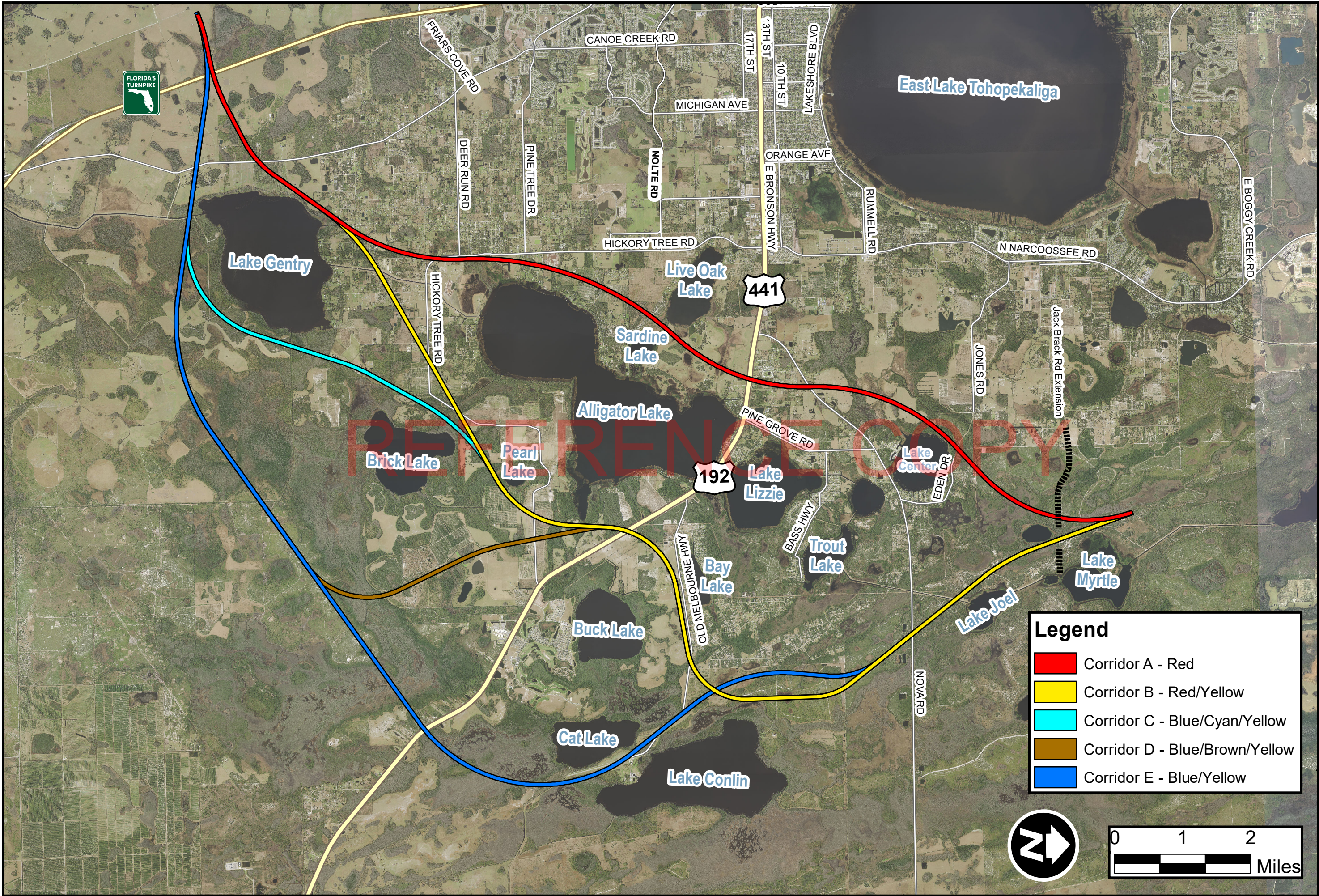




Table 6-2  
Micro-Area Study Matrix

<b>Northeast Connector Expressway Micro-Area Study Corridor Analysis Alternatives Evaluation Matrix</b>			
Evaluation Criteria	Alternative Corridor - Cyan	Alternative Corridor - Magenta	Alternative Corridor - Yellow
<b>Social, Cultural, Natural and Physical Environment</b>			
Number of residential relocations	0	0	2
Number of business relocations	0	0	0
Number of parcels Impacted	21	26	33
Total Area of Takes (Acres)	182.13	198.81	208.46
Cultural Resources	Low	Low	Low
Wetlands (acres)	42.6	49.9	49.2
Threatened and endangered species	High	Moderate	Moderate
Contamination	Low	Low	Low
Floodplains	3	2	1
Surface Water Impacts (Acres)	9.6	0	0
<b>Engineering Factors</b>			
Horizontal Geometry (Ranking)	1	3	2
Utilities	High	High	High
Interchange at US 192	2	2	1
Geotechnical	Medium	Medium	Medium
Bridge Lengths (feet)	5000	3260	3060
<b>Public Input</b>			
Public Input (Ranking)	3	2	1
<b>Estimated Costs (Present Day Costs)</b>			
Mainline Roadway and Structures	\$126,234,028	\$118,059,778	\$114,322,862
Interchange at US 192	\$10,858,294	\$10,874,513	\$9,917,875
Total construction cost	\$137,092,322	\$128,934,291	\$124,240,738
Engineering / Administration (24%)	\$32,902,157	\$30,944,230	\$29,817,777
Right-of-way	\$7,790,000	\$9,120,000	\$8,450,000
Wetland mitigation	\$4,323,900	\$5,064,850	\$4,993,800
<b>Grand Total Project Cost</b>	<b>\$182,108,380</b>	<b>\$174,063,371</b>	<b>\$167,502,315</b>







## 6.6.1 Corridor A – Red

### 6.6.1.1 Alignment Location

Corridor A – Red is shown on Figure 6-6. Corridor A – Red begins at a proposed interchange with Florida’s Turnpike and traverses in a northeasterly direction to a proposed interchange with Canoe Creek Road (CR 523). It continues in a northeasterly direction to the west and north of Lake Gentry and crosses Hickory Tree Road (CR 534) to a proposed interchange with Deer Run Road. It then continues in a northerly direction east of Hickory Tree Road (CR 534) and west of Alligator Lake. Corridor A – Red crosses Alligator Lake Road and then traverses between Live Oak Lake and Sardine Lake to a proposed interchange with US 192 (SR 500) east of Nova Road (CR 532). It then crosses Nova Road (CR 532) to a proposed interchange with the proposed extension of Jack Brack Road. The project terminates north of the proposed interchange with Jack Brack Road at the connection to the proposed Osceola Parkway Extension. The horizontal geometry for Corridor A – Red is also shown on a table included on Figure 6-6. The concept plans for Corridor A – Red are contained in Appendix A.

### 6.6.1.2 Proposed Typical Section

The proposed typical section for Corridor A – Red is shown on Figure 6-7 and consists of two 12-foot travel lanes in each direction separated by an 88-foot median. The outside shoulder is 12 feet wide (10 feet paved) and the inside shoulder is eight feet wide (four feet paved). The border width is 94 feet. The minimum right-of-way width is 324 feet.

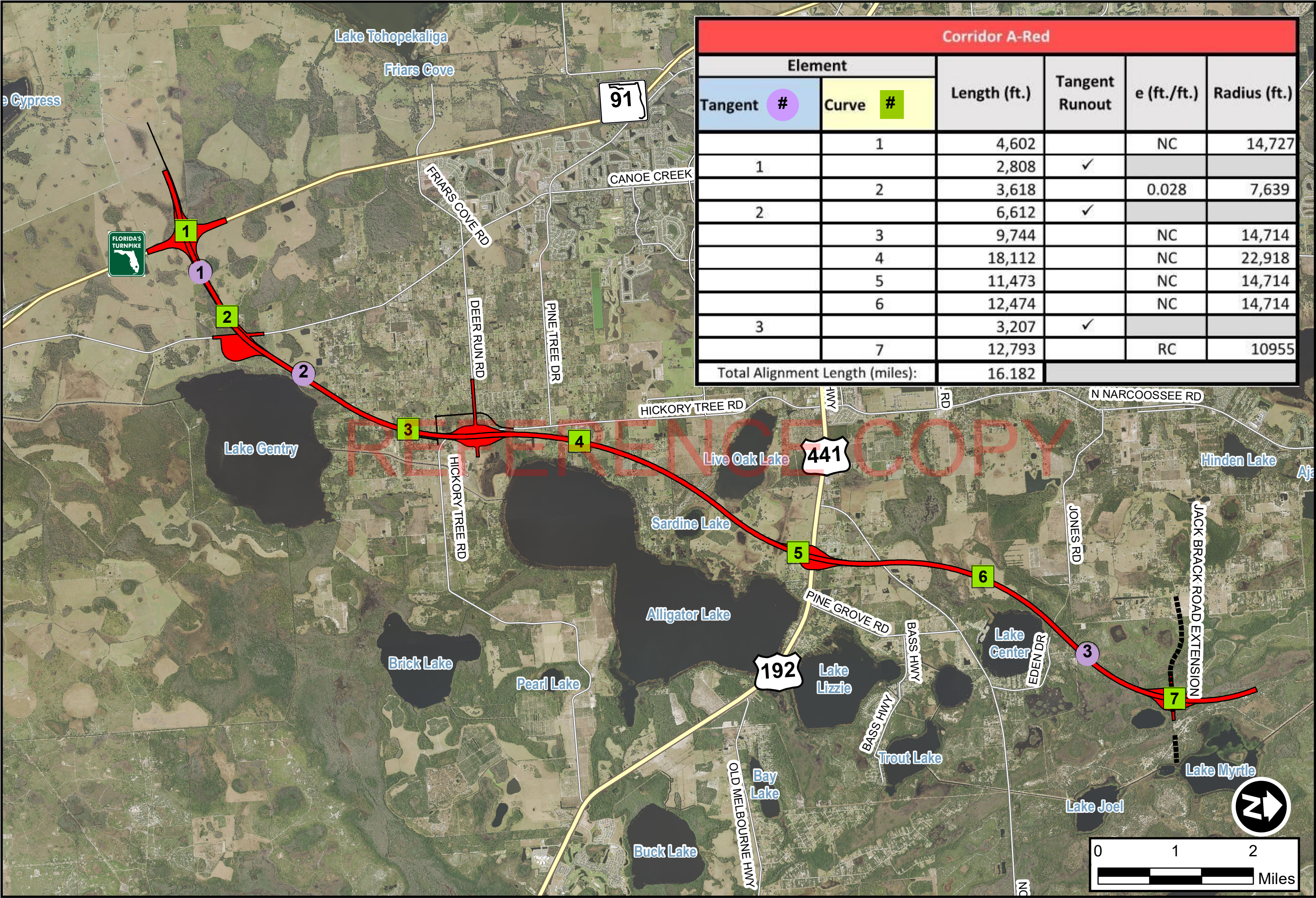
### 6.6.1.3 Proposed Interchanges

The locations and types of interchanges for Corridor A – Red are shown in Table 6-3. Figure 6-8 shows the locations of the proposed interchanges for each corridor alignment alternative.

Table 6-3  
Corridor A – Red Interchange Type and Location

Location No.	Cross Road	Interchange Type
I-1	Florida’s Turnpike	Full Directional System to System
I-2	Canoe Creek Road (CR 523)	Modified Diamond
I-3	Deer Run Road	Diamond
I-4	US 192 (SR 500)	Diamond
I-5	Jack Brack Road	Diamond



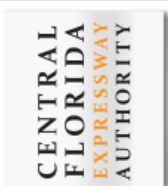


Corridor A-Red					
Element		Length (ft.)	Tangent Runout	e (ft./ft.)	Radius (ft.)
Tangent #	Curve #				
	1	4,602		NC	14,727
1		2,808	✓		
	2	3,618		0.028	7,639
2		6,612	✓		
	3	9,744		NC	14,714
	4	18,112		NC	22,918
	5	11,473		NC	14,714
	6	12,474		NC	14,714
3		3,207	✓		
	7	12,793		RC	10955
Total Alignment Length (miles):		16.182			

Figure 6-6  
Page 131

Corridor A- Red  
Horizontal Geometry

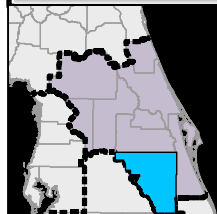
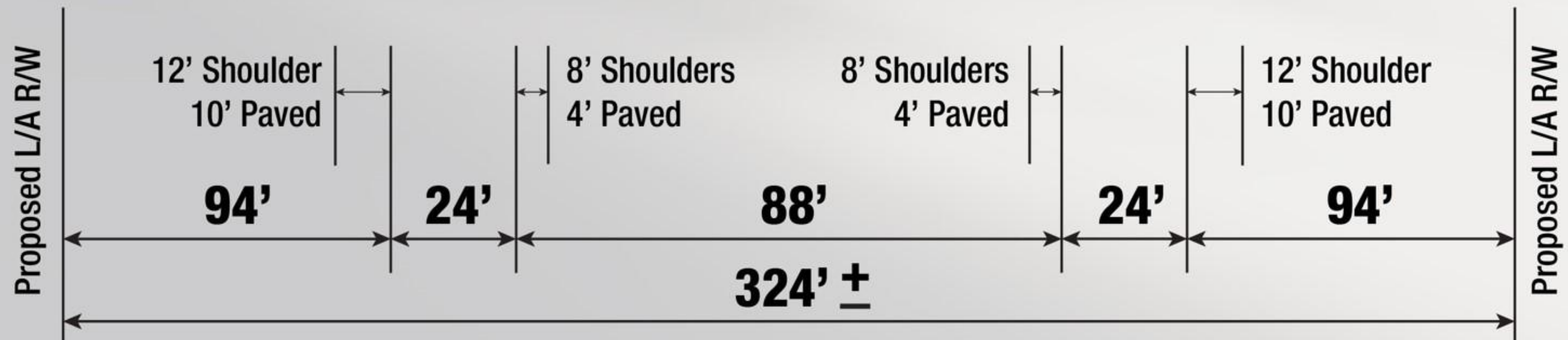
Northeast Connector Expressway  
Concept, Feasibility & Mobility Study  
From Florida's Turnpike to South of the Osceola/Orange County Line  
Osceola County, Florida  
CFX Project Number: 599-222







REFERENCE COPY



**Northeast Connector Expressway**  
**Concept, Feasibility & Mobility Study**  
 from Southport Connector Expressway at Canoe Creek Road  
 Northeast to the vicinity of the Osceola/Orange County Line  
 Osceola County, Florida  
 Contract Number: 001248

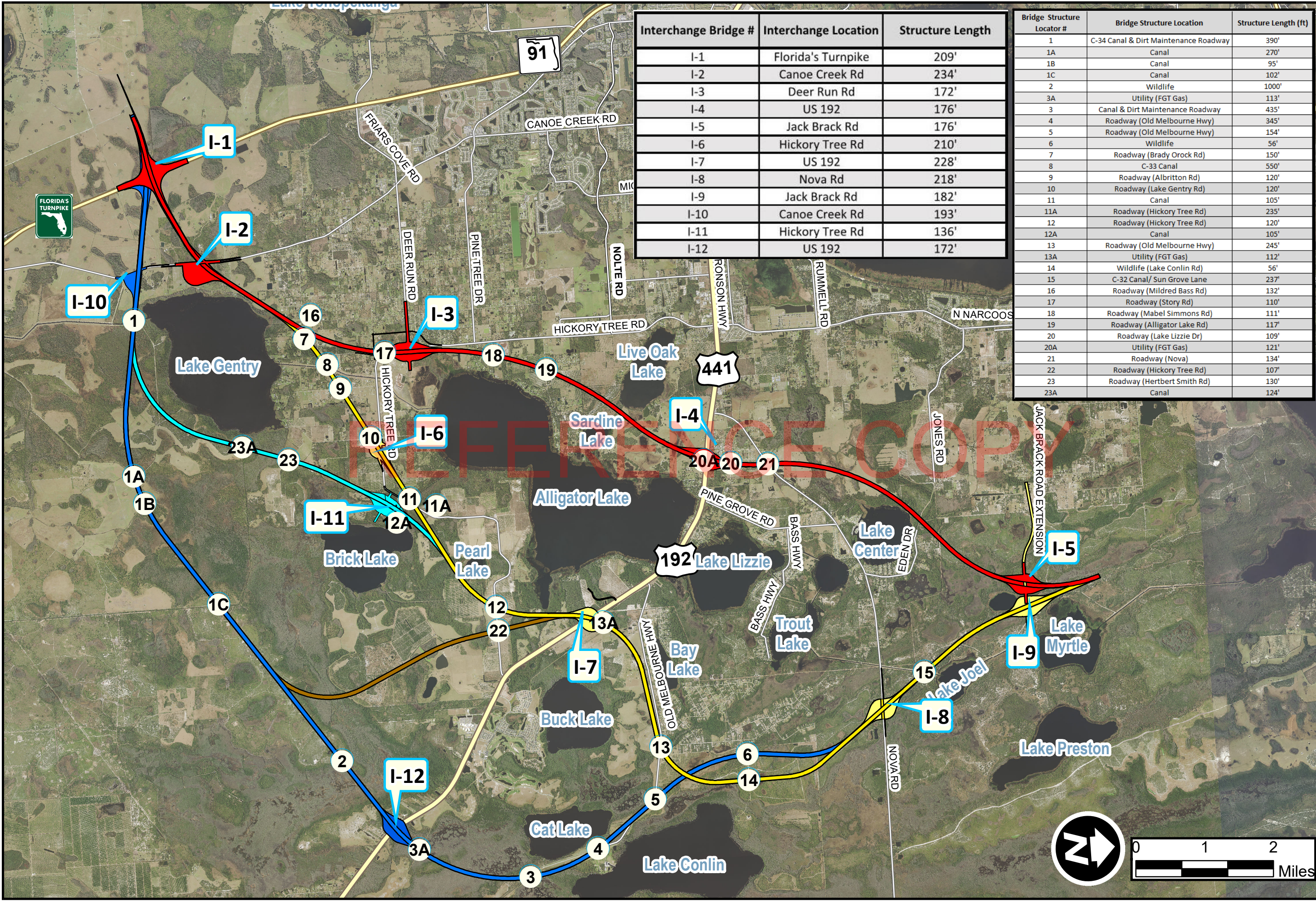
**CORRIDOR A - RED PROPOSED**  
**TYPICAL SECTION**

Figure

6-7

Page 132





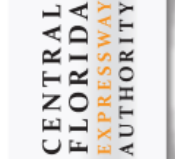
Interchange Bridge #	Interchange Location	Structure Length
I-1	Florida's Turnpike	209'
I-2	Canoe Creek Rd	234'
I-3	Deer Run Rd	172'
I-4	US 192	176'
I-5	Jack Brack Rd	176'
I-6	Hickory Tree Rd	210'
I-7	US 192	228'
I-8	Nova Rd	218'
I-9	Jack Brack Rd	182'
I-10	Canoe Creek Rd	193'
I-11	Hickory Tree Rd	136'
I-12	US 192	172'

Bridge Structure Locator #	Bridge Structure Location	Structure Length (ft)
1	C-34 Canal & Dirt Maintenance Roadway	390'
1A	Canal	270'
1B	Canal	95'
1C	Canal	102'
2	Wildlife	1000'
3A	Utility (FGT Gas)	113'
3	Canal & Dirt Maintenance Roadway	435'
4	Roadway (Old Melbourne Hwy)	345'
5	Roadway (Old Melbourne Hwy)	154'
6	Wildlife	56'
7	Roadway (Brady Orock Rd)	150'
8	C-33 Canal	550'
9	Roadway (Albritton Rd)	120'
10	Roadway (Lake Gentry Rd)	120'
11	Canal	105'
11A	Roadway (Hickory Tree Rd)	235'
12	Roadway (Hickory Tree Rd)	120'
12A	Canal	105'
13	Roadway (Old Melbourne Hwy)	245'
13A	Utility (FGT Gas)	112'
14	Wildlife (Lake Conlin Rd)	56'
15	C-32 Canal/ Sun Grove Lane	237'
16	Roadway (Mildred Bass Rd)	132'
17	Roadway (Story Rd)	110'
18	Roadway (Mabel Simmons Rd)	111'
19	Roadway (Alligator Lake Rd)	117'
20	Roadway (Lake Lizzie Dr)	109'
20A	Utility (FGT Gas)	121'
21	Roadway (Nova)	134'
22	Roadway (Hickory Tree Rd)	107'
23	Roadway (Hertbert Smith Rd)	130'
23A	Canal	124'

Figure 6-8  
Page 133

Interchange and Bridge Structure Locations

Northeast Connector Expressway  
Concept, Feasibility & Mobility Study  
From Florida's Turnpike to South of the Osceola/Orange County Line  
Osceola County, Florida  
CFX Project Number: 599-222





#### 6.6.1.4 Proposed Structures

Bridge structures occur at interchanges, road crossings, major gas mains, and canal crossings. The location, type of crossing, and the type of anticipated bridge structure are shown in Table 6-4. Figure 6-8 also shows the locations of the proposed structures for each corridor alignment alternative.

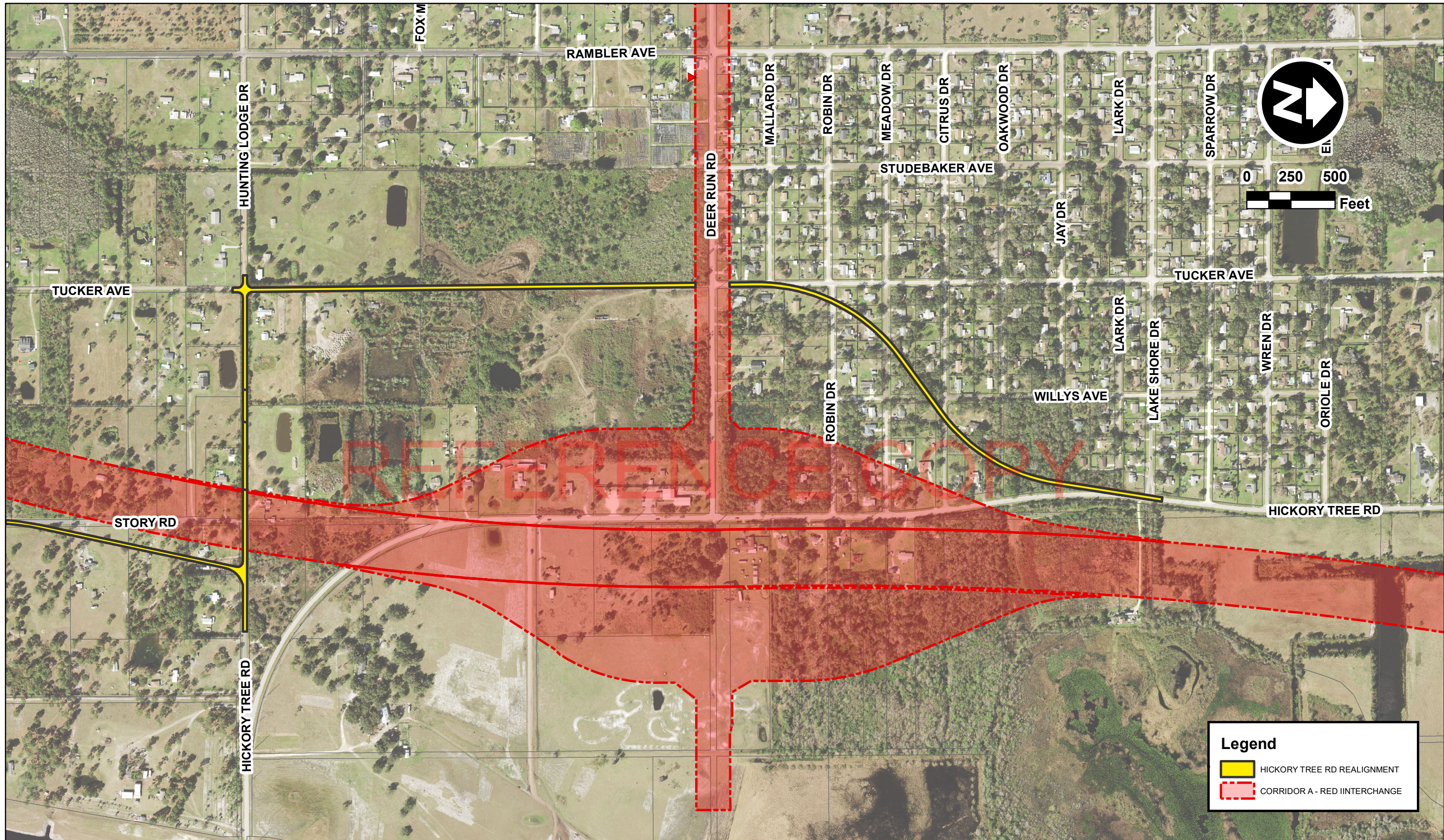
Table 6-4  
Corridor A – Red Bridge Structure Location, Type of Crossing, and Type of Bridge Structure

Location No.	Cross Feature	Type of Crossing	Type of Bridge Structure
I-1	Florida's Turnpike	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
I-2	Canoe Creek Road (CR 523)	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
16	Mildred Bass Road	Cross Road	Concrete Deck / Steel Girder - Simple Span, Curved
17	Story Road (CR 534)	Cross Road	Concrete Deck / Steel Girder - Simple Span, Curved
I-3	Deer Run Road	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
18	Mabel Simmons Road	Cross Road	Concrete Deck / Steel Girder - Simple Span, Curved
19	Alligator Lake Road	Cross Road	Concrete Deck / Steel Girder - Simple Span, Curved
I-4	US 192 (SR 500)	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
20	South of Lake Lizzie Dr.	FGT Gas Main	Concrete Deck / Steel Girder - Simple Span, Curved
20A	Lake Lizzie Drive	Cross Road	Concrete Deck / Steel Girder - Simple Span, Curved
21	Nova Road (CR 532)	Cross Road	Concrete Deck / Steel Girder - Simple Span, Curved
I-5	Jack Brack Road	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved

#### 6.6.1.5 Maintenance of Access – Driveway Connections

Hickory Tree Road (CR 534) runs in an east-west direction south of Deer Run Road and then curves in a northerly direction as it approaches Deer Run Road. The proposed interchange with Deer Run Road would impact Hickory Tree Road (CR 534) in this location. As shown on Figure 6-9, Hickory Tree Road (CR 534) is proposed to be relocated to the west of the southbound off-ramp to an intersection with Deer Run Road and then south to a western extension of the east/west portion of Hickory Tree Road (CR 534). Story Road would then connect to the westerly extension





**Legend**

HICKORY TREE RD REALIGNMENT

CORRIDOR A - RED INTERCHANGE



of Hickory Tree Road (CR 534). No other modifications to driveways or existing road systems are anticipated.

#### 6.6.1.6 Drainage and Stormwater Considerations

The stormwater ponds for Corridor A – Red, including the five interchanges, were sized to accommodate 406 acres of additional net impervious area, which assumes a fully paved median. The required treatment volume is 173.5 acre-feet and includes the additional 50% volume to accommodate the Lake Okeechobee BMAP criteria. The proposed improvements are estimated to impact 417 acres of floodplain and provide compensating storage of 594 acre-feet. Corridor A – Red was subdivided into a total of 15 onsite mainline basins, which result in a total required pond area of 227.1 acres, which is equivalent to 12.9 acres of pond per mile of alignment. Wet detention pond geometries with regards to their design service for CFX facilities from CFX Contracts 450, 451, 417-304, 417-453, and 417-454 were reviewed to determine appropriate estimates for design depth for the anticipated level of service for the NE Connector Expressway. Large basins that include future impervious area had a treatment depth over impervious area range of 2.5-ft to 3.36-ft. The five proposed interchanges result in 126.7 acres of required pond area. It is estimated that there is sufficient infield area to accommodate a majority of the interchange-required pond area; however, an additional 50.7 acres of right-of-way will be needed for Florida's Turnpike pond. The total required pond area for the mainline and five interchanges is 353.8 acres with 277.8 acres of additional right-of-way needed. The summary of required volumes and required pond area for each basin is provided in Table 6-5. Please refer to Appendix F for additional clarification on the pond sizing methodology as well as the supporting calculations.

The methodology used to locate the pond sites considered several factors, such as existing topography, soil types, existing land use coverage, estimated seasonal high water, and basin outfall locations. Environmental impacts, such as wetlands, were avoided whenever possible, and the ponds were sited and shaped around wetland boundaries. As the ponds were sized to also provide compensation for floodplain impacts, the location of the pond sites were placed adjacent to the 100-year floodplain boundaries to provide connectivity to the floodplains.

Additionally, the ponds were sited on remnant parcels or parcels already impacted by the new alignments, when possible, in which there is low potential for major utility conflicts and impacts to cultural resources. Minimizing impacts to future development potential within the parcels was also considered when placing the pond sites. This methodology was consistent for all corridors. The preliminary locations of the ponds are shown on the concept plans contained in Appendix A.

As part of the location hydraulics analysis, locations were identified where significant offsite hydraulic conveyance is necessary to not adversely impact offsite properties. For Corridor A – Red, 21 crossings were identified and are summarized in Table 6-6. There are no crossings of regulated floodways along Corridor A – Red. Please refer to Appendix F for additional clarification on the location hydraulics methodology as well as the supporting calculations and specific locations.



Table 6-5  
Corridor A – Red Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac)
Red01	14.4	21.3	14.5	50.2	21.0
Red02	1.7	5.1	15.8	22.6	9.7
Red03	6.0	13.8	153.8	173.6	71.2
Red04	5.1	7.7	14.9	27.7	11.8
Red05	1.9	6.0	7.3	15.2	6.6
Red06	5.0	6.8	0.0	11.8	5.2
Red07	3.4	4.9	22.2	30.5	12.9
Red08	2.6	3.6	12.6	18.8	8.1
Red09	3.3	5.9	19.7	28.9	12.3
Red10	3.5	4.6	1.2	9.3	4.1
Red11	4.3	7.0	29.6	40.9	17.2
Red12	9.2	8.6	32.5	50.3	21.1
Red13	2.9	5.3	23.8	32.0	13.6
Red14	3.8	5.0	7.6	16.4	7.1
Red15	3.7	4.5	3.6	11.8	5.2
Subtotal	70.8	110.1	359.1	540.0	227.1
Interchanges					
Red01_IC FL Turnpike	6.9	28.8	159.6	195.3	80.0
Red02_IC Canoe Creek Rd (523)	0.0	10.5	36.1	46.6	19.6
Red04_IC Hickory Tree Rd (CR 534)	0.0	8.1	15.4	23.5	10.1
Red09_IC US 192 (SR 500)	0.0	8.8	14.4	23.2	9.9
Red14_IC Lake Myrtle	0.0	7.2	9.3	16.5	7.2
Subtotal	6.9	63.4	234.8	305.1	126.7
Total	77.7	173.5	593.9	845.1	353.8

Table 6-6  
Corridor A – Red Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size	Type
CD-TP01_PR	7' x 5'	CBC
CD-TP02_PR	3 @ 8' x 4'	CBC
CD-100_PR	60"	Pipe
CD-101_PR	48"	Pipe
CD-102_PR	10' x 5'	CBC
CD-103_PR	7' x 4'	CBC
CD-104_PR	8' x 5'	CBC
CD-105_PR	7' x 6'	CBC
CD-106_PR	9' x 8'	CBC
CD-107_PR	8' x 6'	CBC
CD-108_PR	8' x 5'	CBC
CD-109_PR	54"	Pipe
CD-110_PR	7' x 5'	CBC
CD-111_PR	54"	Pipe
CD-112_PR	8' x 6'	CBC
CD-113_PR	8' x 5'	CBC
CD-114_PR	7' x 4'	CBC
CD-115_PR	8' x 5'	CBC
CD-116_PR	10' x 9'	CBC
CD-117_PR	6' x 5'	CBC
CD-118_PR	60"	Pipe

#### 6.6.1.7 Proposed Right-of-Way Needs

The total right-of-way width for Corridor A – Red is a minimum of 324 feet. The right-of-way width increases at the interchanges. The total right-of-way required for Corridor A – Red, including stormwater management and floodplain compensation ponds, is estimated to be 1,349 acres.

#### 6.6.1.8 Projected Design Year Traffic

The projected 2045 AADT and V/C ratios for Corridor A – Red are summarized in Table 6-7. AADT volumes on the Northeast Connector Expressway range from 12,300 (from Nolte Road to Deer Run Road) to 51,900 (from Cyrils Drive to Jack Brack Road). The weighted 2045 AADT for Corridor A – Red (based on length) is 25,600.

Three roadway segments are projected to operate with a V/C ratio greater than 1.0 (see highlighted cells in Table 6-7), signifying that the demand exceeds the roadway capacity and significant congestion will result. Narcoossee Road (CR 15), north of Osceola Parkway Extension, is projected to have a V/C ratio of 1.09. This portion of Narcoossee Road (CR 15) is over capacity for all alternatives. US 192 (SR 500), from the Northeast Connector Expressway interchange to Old



Melbourne Highway (CR 500A), is projected to have a V/C ratio of 1.04. Nova Road (CR 532), from Pine Grove Road to the Northeast Connector Expressway interchange, is projected to have a V/C ratio of 1.01. Over-capacity conditions associated with the No-Build conditions are relieved on Narcoossee Road (CR 15) (from Rummell Road to Osceola Parkway Extension) and US 192 (SR 500) (from Narcoossee Road [CR 15] to the Northeast Connector Expressway interchange).

Table 6-7  
Corridor A – Red Projected 2045 Design Traffic and Conditions

Roadway		# Of Lanes Assumed	Type Assumed <sup>(2)</sup>	Corridor A AADT	Corridor A V/C <sup>(3)</sup>
From <sup>(1)</sup>	To <sup>(1)</sup>				
Northeast Connector Expressway					
Cyrils Dr (A,B,C,D,E)	Jack Brack Rd (A,B,C,D,E)	4	Freeway	51,900	0.65
Jack Brack Rd (A,B,C,D,E)	Nova Rd (CR 532) (B,C,D,E)	4	Freeway	28,400	0.36
Nova Rd (CR 532) (B,C,D,E)	US 192 (SR 500) (A,B,C,D,E)	4	Freeway	28,400	0.36
US 192 (SR 500) (A,B,C,D,E)	Nolte Rd (A)	4	Freeway	18,200	0.23
Nolte Rd (A)	Deer Run (A)/Hickory Tree (CR 534) (B,C)	4	Freeway	12,300	0.15
Deer Run (A)/Hickory Tree (CR 534) (B,C)	Canoe Creek Rd (CR 523) (A,B,C,D,E)	4	Freeway	19,000	0.24
Canoe Creek Rd (CR 523) (A,B,C,D,E)	Florida's Turnpike (A,B,C,D,E)	4	Freeway	36,300	0.45
Florida's Turnpike					
Canoe Creek Service Plaza	NEC Interchange (A,B,C,D,E)	4	Freeway	45,500	0.63
NEC Interchange (A,B,C,D,E)	Friars Cove Road	4	Freeway	70,500	0.88
Friars Cove Rd	Kissimmee Park Rd	4	Freeway	70,500	0.88
Canoe Creek Road (CR 523)					
Lake Cypress Rd	NEC Interchange (C,D,E)	4	Class I	9,400	0.22
NEC Interchange (C,D,E)	NEC Interchange (A,B)	4	Class I	9,400	0.22
NEC Interchange (A,B)	New Road to West	4	Class I	19,900	0.48
New Road to West	Mildred Bass Road	4	Class I	18,300	0.44
Mildred Bass Road					
Canoe Creek Rd	Story Rd	2	Class II	1,800	0.12
Narcoossee Road (CR 15)					
US 192 (SR 500)	Rummell Rd	4	Class I	18,300	0.44
Rummell Rd	Cyrils Dr	4	Class I	35,200	0.84
Cyrils Dr	Boggy Creek Rd	4	Class I	41,300	0.99
Boggy Creek Rd	Osceola Parkway Ext.	6	Class I	42,900	0.80
Osceola Parkway Ext.	SR 417	6	Class I	58,300	1.09
Hickory Tree Road (CR 534)					
US 192 (SR 500)	Nolte Rd	4	Class I	11,600	0.28
Nolte Rd	Deer Run Rd	4	Class I	10,100	0.24
Deer Run Rd	NEC Interchange (B,C)	4	Class I	6,200	0.15
NEC Interchange (B,C)	US 192 (SR 500)	2	Class I	6,100	0.33
Nolte Road					
Hickory Tree Rd (CR 534)	NEC Interchange (A)	4	Class I	11,000	0.26
NEC Interchange (A)	US 192 (SR 500)	2	Class I	4,500	0.24
US 192 (SR 500)					

Roadway		# Of Lanes Assumed	Type Assumed <sup>(2)</sup>	Corridor A AADT	Corridor A V/C <sup>(3)</sup>
From <sup>(1)</sup>	To <sup>(1)</sup>				
Narcoossee Rd (CR 15)	Nova Rd (CR 532)	4	Class I	37,800	0.90
Nova Rd (CR 532)	NEC Interchange (A)	4	Class I	24,600	0.59
NEC Interchange (A)	Old Melbourne Highway (CR 500A)	4	Class I	43,500	1.04
Old Melbourne Highway (CR 500A)	NEC Interchange (B,C,D)	4	Class I	23,900	0.57
NEC Interchange (B,C,D)	Hickory Tree Rd (CR 534)	4	Class I	27,200	0.65
Hickory Tree Rd (CR 534)	NEC Interchange (E)	4	Uninterrupted	27,900	0.38
NEC Interchange (E)	US 441	4	Uninterrupted	20,600	0.30
Old Melbourne Highway (CR 500A)					
US 192 (SR 500)	Lake Conlin Rd	2	Class I	6,400	0.34
Nova Road (CR 532)					
US 192 (SR 500)	Pine Grove Rd	2	Class I	15,000	0.81
Pine Grove Rd	NEC Interchange (B,C,D,E)	2	Class I	18,700	1.01
NEC Interchange (B,C,D,E)	East	2	Uninterrupted	11,100	0.33

Notes:

1) Letter (i.e., A,B,C,D,E) references relevant corridor associated with location. The corridors are identified in Section 6.6.

2) Type of facility used to determine daily capacity in FDOT Generalized Annual Average Daily Volumes

3) Capacity based on FDOT Generalized Annual Average Daily Volume at level of service (LOS) E

## 6.6.2 Corridor B – Red/Yellow

### 6.6.2.1 Alignment Location

Corridor B – Red/Yellow is shown on Figure 6-10. Corridor B – Red/Yellow begins at a proposed interchange with Florida's Turnpike and traverses in a northeasterly direction to a proposed interchange with Canoe Creek Road (CR 523). It continues in a northeasterly direction, west and north of Lake Gentry and crosses the C-33 canal to a proposed interchange with Hickory Tree Road (CR 534). It then continues in a northeasterly direction east of Alligator Lake and between Buck Lake and Pearl Lake to a proposed interchange with US 192 (SR 500). Corridor B – Red/Yellow continues in an easterly direction south of Old Melbourne Highway (CR 500A) and then turns in a northerly direction west of Lake Conlin. It continues in a northwesterly direction to a proposed interchange with Nova Road (CR 532). It then continues in a northwesterly direction to a proposed interchange with the proposed extension of Jack Brack Road. The project terminates north of the proposed interchange with Jack Brack Road at the connection to the proposed Osceola Parkway Extension. The horizontal geometry is also shown in a table included on Figure 6-10. The concept plans for Corridor B – Red/Yellow are contained in Appendix B.







#### 6.6.2.2 Proposed Typical Section

The typical section for Corridor B – Red/Yellow is the same as for Corridor A – Red and is shown on Figure 6-7.

#### 6.6.2.3 Proposed Interchanges

The location and types of interchanges for Corridor B – Red/Yellow are shown in Table 6-8. Figure 6-8 shows the locations of the proposed interchanges for each corridor alignment alternative.

Table 6-8  
Corridor B – Red/Yellow Interchange Type and Location

Location No.	Cross Road	Interchange Type
I-1	Florida's Turnpike	Full Directional System to System
I-2	Canoe Creek Road (CR 523)	Modified Diamond
I-6	Hickory Tree Road (CR 534)	Diamond
I-7	US 192 (SR 500)	Diamond
I-8	Nova Road (CR 532)	Diamond
I-9	Jack Brack Road	Diamond

#### 6.6.2.4 Proposed Structures

Bridge structures occur at interchanges, road crossings, major gas mains, and canal crossings. The location, type of crossing, and type of anticipated bridge structure are shown in Table 6-9.

Table 6-9  
Corridor B – Red/Yellow  
Bridge Structure Location, Type of Crossing and Type of Bridge Structure

Location No.	Cross Feature	Type of Crossing	Type of Bridge Structure
I-1	Florida's Turnpike	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
I-2	Canoe Creek Road (CR 523)	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
7	Brady Orock Road	Cross Road	Concrete Deck / Steel Girder - Simple Span, Curved
8	C-33 Canal	Canal Crossing	Concrete Deck / Steel Girder - Simple Span, Curved
9	Albritton Road	Cross Road	Concrete Deck / Prestressed Girder - Simple Span
10	Lake Gentry Road	Cross Road	Concrete Deck / Prestressed Girder - Simple Span
I-6	Hickory Tree Road (CR 534)	Interchange	Concrete Deck / Prestressed Girder - Simple Span



11	Canal	Canal Crossing	Concrete Deck / Prestressed Girder - Simple Span
11A	Hickory Tree Road (CR 534)	Cross Road	Concrete Deck / Steel Girder - Simple Span, Curved
12	Hickory Tree Road (CR 534)	Cross Road	Concrete Deck / Prestressed Girder - Simple Span
I-7	US 192 (SR 500)	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
13A	Northeast of US 192 (SR 500)	FGT Gas Main	Concrete Deck / Steel Girder - Simple Span, Curved
13	Old Melbourne Hwy (CR 500A)	Cross Road	Concrete Deck / Steel Girder - Simple Span, Curved
14	Lake Conlin Road	Wildlife Crossing	Pre-cast Concrete Slab - Simple Span
I-8	Nova Road (CR 532)	Interchange	Concrete Deck / Prestressed Girder - Simple Span
15	C-32/Sungrove Lane	Canal Crossing	Concrete Deck / Prestressed Girder - Simple Span
I-9	Jack Brack Road	Interchange	Concrete Deck / Prestressed Girder - Simple Span

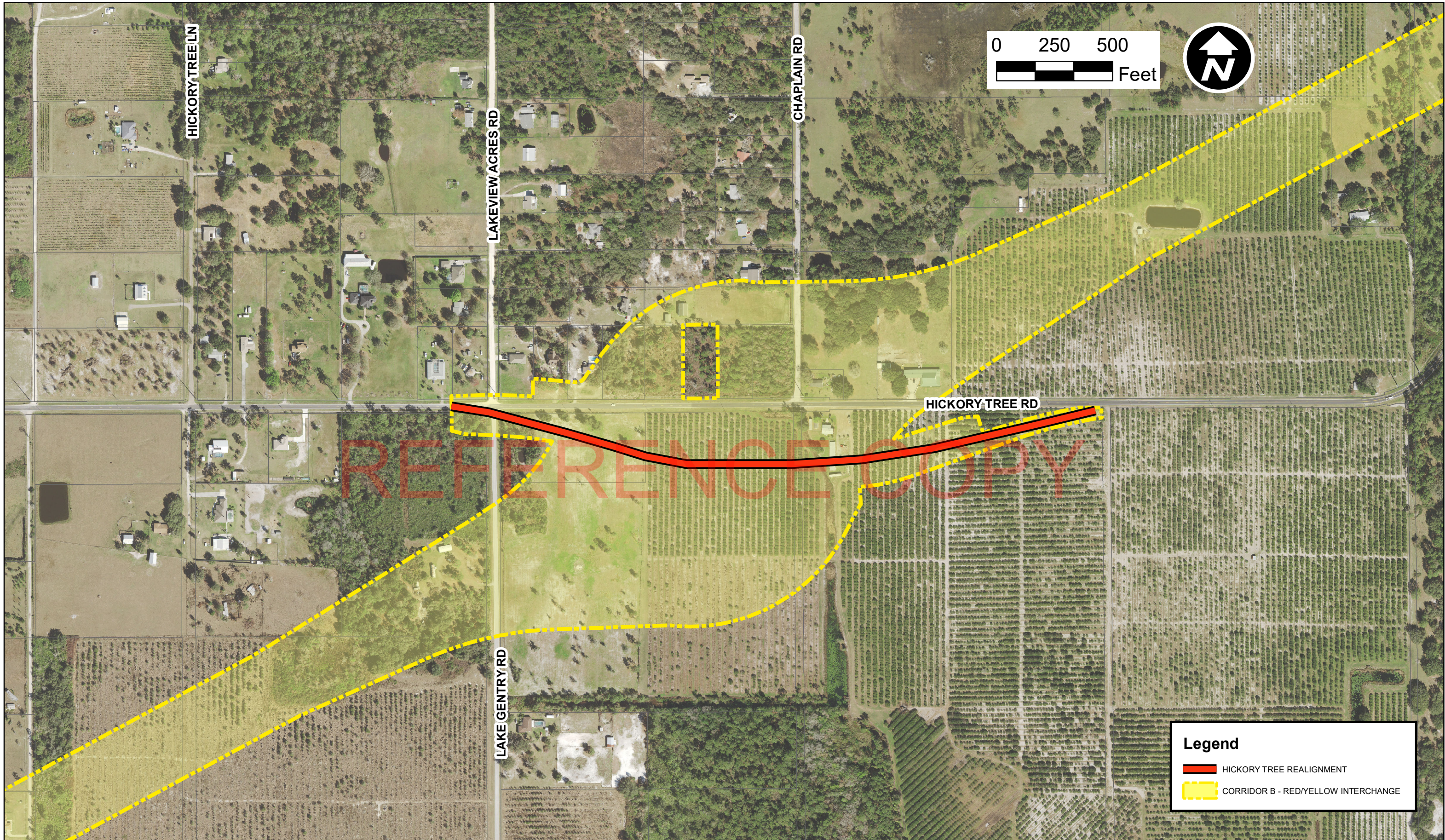
#### 6.6.2.5 Maintenance of Access – Driveway Connections

Corridor B – Red/Yellow will potentially result in a cul-de-sac at Mildred Bass Road and a realignment of Story Road as shown on the concept plans in Appendix B. Because of the skew of existing Hickory Tree Road (CR 534) through the interchange with the Northeast Connector Expressway, the alignment of Hickory Tree Road (CR 534) is proposed to be modified to reduce the skew angle. Figure 6-11 shows the realignment of Hickory Tree Road (CR 534) through the interchange.

#### 6.6.2.6 Drainage and Stormwater Considerations

The stormwater ponds for Corridor B – Red/Yellow mainline, including the six interchanges, were sized to accommodate 480 acres of net additional impervious area, which assumes a fully paved median. The required treatment volume is 199 acre-feet and includes the additional 50% volume to accommodate the Lake Okeechobee BMAP criteria. The proposed improvements are estimated to impact 344 acres of floodplain and provide compensating storage of 553 acre-feet. Corridor B – Red/Yellow was subdivided into a total of 20 onsite mainline basins, which result in a total required pond area of 225.3 acres, which is equivalent to 10 acres of pond per mile of alignment. The six (6) proposed interchanges result in 129 acres of required pond area. It is estimated that there is sufficient infield area to accommodate a majority of the interchange required pond area; however, an additional 51 acres of right-of-way will be needed for the Florida's Turnpike pond. The total required pond area for the mainline and five interchanges is 354.1 acres.







with 276 acres of additional right-of-way needed. The summary of required volumes and required pond area for each basin is provided in Table 6-10. Please refer to Appendix F for additional clarification on the pond sizing methodology as well as the supporting calculations.

Table 6-10  
Corridor B – Red/Yellow Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac)
Red/Yellow01	14.4	21.3	14.5	50.2	21.0
Red/Yellow02	1.7	5.1	15.8	22.6	9.7
Red/Yellow03	7.1	11.5	196.6	215.2	88.0
Red/Yellow04	4.0	6.1	0.0	10.1	4.5
Red/Yellow05	3.6	5.3	0.0	8.9	4.0
Red/Yellow06	1.2	2.6	6.9	10.7	4.7
Red/Yellow07	4.7	5.5	20.6	30.8	13.1
Red/Yellow08	2.4	7.5	13.0	22.9	9.8
Red/Yellow09	2.3	5.9	8.9	17.1	7.4
Red/Yellow10	7.6	6.7	0.0	14.3	6.2
Red/Yellow11	1.6	2.0	0.0	3.6	1.7
Red/Yellow12	4.5	8.4	0.0	12.9	5.6
Red/Yellow13	4.4	7.0	8.4	19.8	8.5
Red/Yellow14	1.9	4.0	0.8	6.7	3.0
Red/Yellow15	3.8	7.8	0.0	11.6	5.1
Red/Yellow16	4.1	5.1	0.6	9.8	4.3
Red/Yellow17	1.9	2.4	3.0	7.3	3.3
Red/Yellow18	3.5	8.1	24.5	36.1	15.2
Red/Yellow19	4.1	5.2	6.2	15.5	6.7
Red/Yellow20	3.3	4.0	0.0	7.3	3.3
<b>Subtotal</b>	<b>82.1</b>	<b>131.5</b>	<b>319.8</b>	<b>533.4</b>	<b>225.3</b>
Interchanges					
Red/Yellow01_IC FL Turnpike	6.9	28.8	159.6	195.3	80.0
Red/Yellow02_IC Canoe Creek Rd	0.0	10.5	36.2	46.7	19.6
Red/Yellow05_IC Hickory Tree Rd (CR 534)	0.8	5.4	0.0	6.2	2.8
Red/Yellow10_IC US 192 (SR 500)	0.0	7.4	0.0	7.4	3.3

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac)
Red/Yellow16_IC Nova Rd (CR 532)	1.1	7.3	3.8	12.2	5.4
Red/Yellow19_IC Jack Brack	0.0	7.9	34.0	41.9	17.6
<b>Subtotal</b>	<b>8.8</b>	<b>67.3</b>	<b>233.6</b>	<b>309.7</b>	<b>128.8</b>
<b>Total</b>	<b>90.9</b>	<b>198.8</b>	<b>553.4</b>	<b>843.1</b>	<b>354.1</b>

The preliminary locations of the ponds for Corridor B – Red/Yellow are shown on the concept plans contained in Appendix B.

As part of the location hydraulics analysis, locations were identified where significant offsite hydraulic conveyance is necessary in order to not adversely impact offsite properties. For Corridor B – Red/Yellow, 19 crossings were identified and are summarized in Table 6-11. Corridor B – Red/Yellow crosses the C-33 regulated floodway with a proposed bridge, which will require a FEMA No-Rise certification. Please refer to Appendix F for additional clarification on the location hydraulics methodology as well as the supporting calculations and specific locations.

Table 6-11  
Corridor B – Red/Yellow Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size	Type
CD-TP01 PR	7' x 5'	CBC
CD-TP02 PR	3@ 8' x 4'	CBC
CD-100_PR	60"	Pipe
CD-101_PR	48"	Pipe
CD-102_PR	10' x 5'	CBC
CD-103_PR	7' x 4'	CBC
CD-104_PR	8' x 5'	CBC
CD-118_PR	60"	Pipe
CD-201_PR	42"	Pipe
CD-202_PR	42"	Pipe
CD-206_PR	10' x 3'	CBC



	Required	
CD-207_PR	6' x 4'	CBC
CD-208_PR	6' x 4'	CBC
CD-209_PR	6' x 4'	CBC
CD-211_PR	8' x 4'	CBC
CD-212_PR	8' x 5'	CBC
CD-307_PR	6' x 5'	CBC
CD-308_PR	7' x 5'	CBC
CD-309_PR	10' x 5'	CBC

#### 6.6.2.7 Proposed Right-of-Way Needs

The total right-of-way width for Corridor B – Red/Yellow is a minimum of 324 feet. The right-of-way width increases at the interchanges. The total right-of-way required for Corridor B – Red/Yellow, including stormwater management and floodplain compensation ponds, is estimated to be 1,447 acres.

#### 6.6.2.8 Projected Design Year Traffic

The projected 2045 AADT and V/C ratios for Corridor B – Red/Yellow are summarized in Table 6-12. AADT volumes on the Northeast Connector Expressway range from 5,700 (from US 192 [SR 500] to Hickory Tree Road [CR 534]) to 44,600 (from Cyrils Drive to Jack Brack Road). The weighted 2045 AADT for Corridor B – Red/Yellow (based on length) is 16,900.

Three roadway segments are projected to operate with a V/C ratio greater than 1.0 (see highlighted cells in Table 6-12), signifying that the demand exceeds the roadway capacity and significant congestion will result. Narcoossee Road (CR 15), north of Osceola Parkway Extension, is projected to have a V/C ratio of 1.08. Nova Road (CR 532), from Pine Grove Road to the Northeast Connector Expressway interchange, is projected to have a V/C ratio of 1.08. This portion of Nova Road (CR 532) is over capacity for all alternatives. Florida's Turnpike, from the Northeast Connector Expressway interchange north, is also over capacity (this condition occurs for Corridors B, C, D, and E but not the No-Build or Corridor A – Red). With the construction of the Southport Connector Expressway (west of Florida's Turnpike) and the Northeast Connector Expressway, future conditions show an increase in traffic volumes on Florida's Turnpike north of its interchange with these expressways. Corridor A – Red serves sufficient traffic to keep Florida's Turnpike under its capacity (with a V/C of 0.88); however, Corridor B – Red/Yellow results in Florida's Turnpike having a V/C ratio of 1.04.

Over-capacity conditions associated with the No-Build conditions are relieved on Narcoossee Road (CR 15) (from Rummell Road to Osceola Parkway Extension) and US 192 (SR 500) (from Narcoossee Road [CR 15] to Old Melbourne Highway [CR 500A]).

Table 6-12  
Corridor B – Red/Yellow Projected 2045 Design Traffic and Conditions

Roadway		# Of Lanes Assumed	Type Assumed <sup>(2)</sup>	Corridor B AADT	Corridor B V/C <sup>(3)</sup>
From <sup>(1)</sup>	To <sup>(2)</sup>				
Northeast Connector Expressway					
Cyrils Dr (A,B,C,D,E)	Jack Brack Rd (A,B,C,D,E)	4	Freeway	44,600	0.56
Jack Brack Rd (A,B,C,D,E)	Nova Rd (CR 532) (B,C,D,E)	4	Freeway	25,100	0.31
Nova Rd (CR 532) (B,C,D,E)	US 192 (SR 500) (A,B,C,D,E)	4	Freeway	13,500	0.17
US 192 (SR 500) (A,B,C,D,E)	Nolte Rd (A)	4	Freeway	5,700	0.07
Nolte Rd (A)	Deer Run (A)/Hickory Tree (CR 534) (B,C)	4	Freeway	5,700	0.07
Deer Run (A)/Hickory Tree (CR 534) (B,C)	Canoe Creek Rd (CR 523) (A,B,C,D,E)	4	Freeway	11,200	0.14
Canoe Creek Rd (CR 523) (A,B,C,D,E)	Florida's Turnpike (A,B,C,D,E)	4	Freeway	32,900	0.41
Florida's Turnpike					
Canoe Creek Service Plaza	NEC Interchange (A,B,C,D,E)	4	Freeway	45,500	0.63
NEC Interchange (A,B,C,D,E)	Friars Cove Road	4	Freeway	83,200	1.04
Friars Cove Rd	Kissimmee Park Rd	4	Freeway	83,200	1.04
Canoe Creek Road (CR 523)					
Lake Cypress Rd	NEC Interchange (C,D,E)	4	Class I	10,600	0.25
NEC Interchange (C,D,E)	NEC Interchange (A,B)	4	Class I	17,300	0.41
NEC Interchange (A,B)	New Road to West	4	Class I	15,900	0.38
New Road to West	Mildred Bass Road	4	Class I	21,700	0.52
Mildred Bass Road					
Canoe Creek Rd (CR 523)	Story Rd	2	Class II	4,100	0.28
Narcoossee Road (CR 15)					
US 192 (SR 500)	Rummell Rd	4	Class I	22,800	0.55
Rummell Rd	Cyrils Dr	4	Class I	37,200	0.89
Cyrils Dr	Boggy Creek Rd	4	Class I	41,200	0.99
Boggy Creek Rd	Osceola Parkway Ext.	6	Class I	43,100	0.81
Osceola Parkway Ext.	SR 417	6	Class I	57,500	1.08
Hickory Tree Road (CR 534)					
US 192 (SR 500)	Nolte Rd	4	Class I	12,600	0.30
Nolte Rd	Deer Run Rd	4	Class I	11,600	0.28
Deer Run Rd	NEC Interchange (B,C)	4	Class I	2,600	0.06
NEC Interchange (B,C)	US 192 (SR 500)	2	Class I	7,900	0.42
Nolte Road					
Hickory Tree Rd (CR 534)	NEC Interchange (A)	4	Class I	8,900	0.21
NEC Interchange (A)	US 192 (SR 500)	2	Class I	8,400	0.45
US 192 (SR 500)					
Narcoossee Rd (CR 15)	Nova Rd (CR 532)	4	Class I	35,300	0.84
Nova Rd (CR 532)	NEC Interchange (A)	4	Class I	23,700	0.57
NEC Interchange (A)	Old Melbourne Highway (CR 500A)	4	Class I	23,700	0.57
Old Melbourne Highway (CR 500A)	NEC Interchange (B,C,D)	4	Class I	22,400	0.54
NEC Interchange (B,C,D)	Hickory Tree Rd (CR 534)	4	Class I	24,600	0.59
Hickory Tree Rd (CR 534)	NEC Interchange (E)	4	Uninterrupted	27,200	0.37
NEC Interchange (E)	US 441	4	Uninterrupted	19,900	0.29



Roadway		# Of Lanes Assumed	Type Assumed <sup>(2)</sup>	Corridor B AADT	Corridor B V/C <sup>(3)</sup>
From <sup>(1)</sup>	To <sup>(2)</sup>				
Old Melbourne Highway (CR 500A)	NEC Interchange (B,C,D)	4	Class I	22,400	0.54
NEC Interchange (B,C,D)	Hickory Tree Rd (CR 534)	4	Class I	24,600	0.59
Hickory Tree Rd (CR 534)	NEC Interchange (E)	4	Uninterrupted	27,200	0.37
NEC Interchange (E)	US 441	4	Uninterrupted	19,900	0.29
Old Melbourne Highway (CR 500A)					
US 192 (SR 500)	Lake Conlin Rd	2	Class I	6,400	0.34
Nova Road (CR 532)					
US 192 (SR 500)	Pine Grove Rd	2	Class I	15,900	0.85
Pine Grove Rd	NEC Interchange (B,C,D,E)	2	Class I	20,100	1.08
NEC Interchange (B,C,D,E)	East	2	Uninterrupted	16,800	0.50

Notes:

1) Letter (i.e., A,B,C,D,E) references relevant corridor associated with location. The corridors are identified in Section 6.6.

2) Type of facility used to determine daily capacity in FDOT Generalized Annual Average Daily Volumes

3) Capacity based on FDOT Generalized Annual Average Daily Volume at level of service (LOS) E

### 6.6.3 Corridor C – Blue/Cyan/Yellow

#### 6.6.3.1 Alignment Location

Corridor C – Blue/Cyan/Yellow is shown on Figure 6-12. Corridor C – Blue/Cyan/Yellow begins at a proposed interchange with Florida's Turnpike and traverses in an easterly direction to a proposed interchange with Canoe Creek Road (CR 523). It continues in an easterly direction, south of Lake Gentry, and crosses the C-34 canal. It then continues in a northeasterly direction to a proposed interchange with Hickory Tree Road (CR 534). It continues on in a northeasterly direction between Buck Lake and Pearl Lake and east of Alligator Lake to a proposed interchange with US 192 (SR 500). Corridor C – Blue/Cyan/Yellow continues in an easterly direction south of Old Melbourne Highway (CR 500A) and then turns in a northerly direction west of Lake Conlin. It continues in a northwesterly direction to a proposed interchange with Nova Road (CR 532). It then continues in a northwesterly direction to a proposed interchange with the proposed extension of Jack Brack Road. The project terminates north of the proposed interchange with Jack Brack Road at the connection to the proposed Osceola Parkway Extension. The horizontal geometry is also shown in a table included on Figure 6-12. The concept plans for Corridor C – Blue/Cyan/Yellow are contained in Appendix C.

#### 6.6.3.2 Proposed Typical Section

The typical section for Corridor C – Blue/Cyan/Yellow is the same as for Corridor A – Red and is shown on Figure 6-7.

#### 6.6.3.3 Proposed Interchanges

The location and types of interchanges for Corridor C – Blue/Cyan/Yellow are shown in Table 6-13.







Table 6-13  
Corridor C – Blue/Cyan/Yellow Interchange Type and Location

Location No.	Cross Road	Interchange Type
I-1	Florida's Turnpike	Full Directional System to System
I-10	Canoe Creek Road (CR 523)	Modified Diamond
I-11	Hickory Tree Road (CR 534)	Diamond
I-7	US 192 (SR 500)	Diamond
I-8	Nova Road (CR 532)	Diamond
I-9	Jack Brack Road	Diamond

#### 6.6.3.4 Proposed Structures

Bridge structures occur at interchanges, road crossings, major gas mains, and canal crossings. The location, type of crossing, and the type of anticipated bridge structure are shown in Table 6-14.

Table 6-14  
Corridor C – Blue/Cyan/Yellow  
Bridge Structure Location, Type of Crossing and Type of Bridge Structure

Location No.	Cross Feature	Type of Crossing	Type of Bridge Structure
I-1	Florida's Turnpike	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
I-10	Canoe Creek Road (CR 523)	Interchange	Concrete Deck / Steel Girder - Simple Span
1	C-34 Canal	Canal Crossing	Concrete Deck / Prestressed Girder - Simple Span
23A	Canal	Canal Crossing	Concrete Deck / Prestressed Girder - Simple Span
23	Herbert Smith Road	Cross Road	Concrete Deck / Prestressed Girder - Simple Span
I-11	Hickory Tree Road (CR 534)	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
12A	Canal	Canal Crossing	Concrete Deck / Steel Girder - Simple Span, Curved
12	Hickory Tree Road (CR 534)	Cross Road	Concrete Deck / Steel Girder - Simple Span, Curved
I-7	US 192 (SR 500)	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
13A	Northeast of US 192 (SR 500)	FGT Gas Main	Concrete Deck / Steel Girder - Simple Span, Curved
13	Old Melbourne Hwy (CR 500A)	Cross Road	Concrete Deck / Steel Girder - Simple Span, Curved
14	Lake Conlin Road	Wildlife Crossing	Pre-cast Concrete Slab - Simple Span

Location No.	Cross Feature	Type of Crossing	Type of Bridge Structure
I-8	Nova Road (CR 532)	Interchange	Concrete Deck / Prestressed Girder - Simple Span
15	C-32/Sungrove Lane	Canal Crossing	Concrete Deck / Prestressed Girder - Simple Span
I-9	Jack Brack Road	Interchange	Concrete Deck / Prestressed Girder - Simple Span

#### 6.6.3.5 Maintenance of Access – Driveway Connections

Because Hickory Tree Road (CR 534) is parallel to the Northeast Connector Expressway at the location of the interchange, a connector road is proposed from Hickory Tree Road (CR 534) to the interchange with the Northeast Connector Expressway. Figure 6-13 shows the Hickory Tree connector road and interchange.

#### 6.6.3.6 Drainage and Stormwater Considerations

The stormwater ponds for Corridor C – Blue/Cyan/Yellow mainline, including the six interchanges, were sized to accommodate 498 acres of net additional impervious area, which assumes a fully paved median. The required treatment volume is 196 acre-feet and includes the additional 50% volume to accommodate the Lake Okeechobee BMAP criteria. The proposed improvements are estimated to impact 409 acres of floodplain and provide compensating storage of 785 acre-feet. Corridor C – Blue/Cyan/Yellow was subdivided into a total of 21 onsite mainline basins, which result in a total required pond area of 326.6 acres, which is equivalent to 15 acres of ponds per mile of alignment. The six proposed interchanges result in 133 acres of required pond area. It is estimated that there is sufficient infield area to accommodate a majority of the interchange required pond area; however, an additional 64 acres of right-of-way will be needed for Florida's Turnpike and Hickory Tree Road (CR 534) ponds. The total required pond area for the mainline and six interchanges is 460.3 acres with 390 acres of additional right-of-way needed. The summary of required volumes and required pond area for each basin is provided in Table 6-15. Please refer to Appendix F for additional clarification on the pond sizing methodology as well as the supporting calculations.



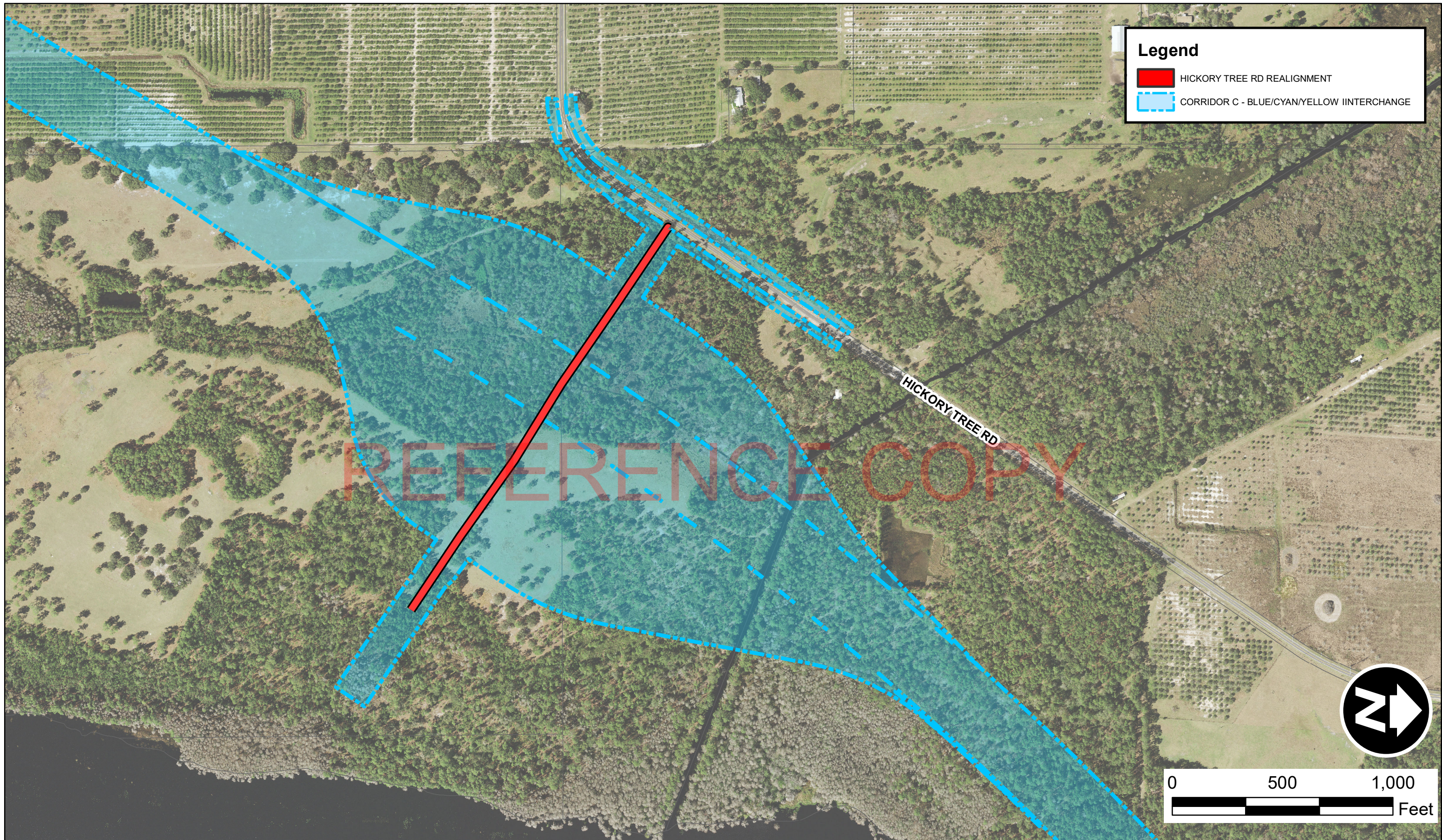




Table 6-15  
Corridor C – Blue/Cyan/Yellow Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac)
Blue/Cyan/Yellow01	14.3	21.4	14.5	50.2	21.0
Blue/Cyan/Yellow02	6.7	6.8	46.8	60.3	25.2
Blue/Cyan/Yellow03	6.0	9.7	271.2	286.9	117.0
Blue/Cyan/Yellow04	23.1	12.3	71.7	107.1	44.2
Blue/Cyan/Yellow05	4.0	5.2	12.6	21.8	9.4
Blue/Cyan/Yellow06A	3.8	3.7	23.3	30.8	13.1
Blue/Cyan/Yellow06B	2.3	2.9	16.1	21.3	9.1
Blue/Cyan/Yellow07	3.4	2.6	11.1	17.1	7.4
Blue/Cyan/Yellow08	2.3	6.5	13.0	21.8	9.4
Blue/Cyan/Yellow09	2.3	5.9	8.9	17.1	7.4
Blue/Cyan/Yellow10	7.6	6.7	0.0	14.3	6.2
Blue/Cyan/Yellow11	1.6	2.0	0.0	3.6	1.7
Blue/Cyan/Yellow12	4.5	8.4	0.0	12.9	5.6
Blue/Cyan/Yellow13	4.4	7.0	8.4	19.8	8.5
Blue/Cyan/Yellow14	1.9	4.0	0.8	6.7	3.0
Blue/Cyan/Yellow15	3.8	7.8	0.0	11.6	5.1
Blue/Cyan/Yellow16	4.1	5.1	0.6	9.8	4.3
Blue/Cyan/Yellow17	1.9	2.4	3.0	7.3	3.3
Blue/Cyan/Yellow18	3.5	8.1	25.2	36.8	15.5
Blue/Cyan/Yellow19	4.1	5.2	6.2	15.5	6.7
Blue/Cyan/Yellow20	3.3	4.0	0.0	7.3	3.3
<b>Subtotal</b>	<b>108.9</b>	<b>137.7</b>	<b>533.4</b>	<b>780.0</b>	<b>326.6</b>
<b>Interchanges</b>					
Blue/Cyan/Yellow01_IC FL Turnpike	7.0	25.0	155.2	187.2	76.7
Blue/Cyan/Yellow02_IC Canoe Creek Rd (CR 523)	0.8	4.1	14.9	19.8	8.5
Blue/Cyan/Yellow06A_IC Hickory Tree Rd (CR 534)	1.9	6.3	39.7	47.9	20.1
Blue/Cyan/Yellow06B_IC Hickory Tree Rd (CR 534)	0.1	0.6	3.7	4.4	2.0
Blue/Cyan/Yellow 0_IC US 192 (SR 500)	0.0	7.4	0.0	7.4	3.3
Blue/Cyan/Yellow16_IC Nova Rd (CR 532)	1.1	7.3	3.8	12.2	5.4



Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac)
Blue/Cyan/Yellow18_IC Jake Brack	0.0	7.9	34.0	41.9	17.6
Subtotal	10.9	58.6	251.3	320.8	133.7
<b>Total</b>	<b>119.8</b>	<b>196.3</b>	<b>784.7</b>	<b>1100.8</b>	<b>460.3</b>

The preliminary locations of the ponds are shown on the concept plans contained in Appendix C.

As part of the location hydraulics analysis, locations were identified where significant offsite hydraulic conveyance is necessary to not adversely impact offsite properties. For Corridor C – Blue/Cyan/Yellow, 17 crossings were identified and are summarized in Table 6-16. Alignment Cyan crosses the C-34 regulated floodway with a proposed bridge, which will require a FEMA No-Rise certification. Please refer to Appendix F for additional clarification on the location hydraulics methodology as well as the supporting calculations and specific locations.

Table 6-16  
Corridor C – Blue/Cyan/Yellow Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size	Type
CD-TP01 PR	7' x 5'	CBC
CD-TP02 PR	3@ 8' x 4'	CBC
CD-118_PR	60"	Pipe
CD-206_PR	10' x 3'	CBC
CD-207_PR	6' x 4'	CBC
CD-208_PR	6' x 4'	CBC
CD-209_PR	6' x 4'	CBC
CD-211_PR	8' x 4'	CBC
CD-212_PR	8' x 5'	CBC
CD-300_PR	6' x 4'	CBC
CD-301_PR	7' x 4'	CBC
CD-305_PR	7' x 5'	CBC
CD-306_PR	6' x 4'	CBC
CD-307_PR	6' x 5'	CBC
CD-308_PR	7' x 5'	CBC
CD-309_PR	10' x 5'	CBC
CD-400_PR	7' x 5'	CBC

### 6.6.3.7 Proposed Right-of-Way Needs

The total right-of-way width for Corridor C – Blue/Cyan/Yellow is a minimum of 324 feet. The right-of-way width increases at the interchanges. The total right-of-way required for Corridor C – Blue/Cyan/Yellow, including stormwater management and floodplain compensation ponds, is estimated to be 1,581 acres.

### 6.6.3.8 Projected Design Year Traffic

The projected 2045 AADT and V/C ratios for Corridor C – Blue/Cyan/Yellow are summarized in Table 6-17. (Note that volumes for Corridor C – Blue/Cyan/Yellow are expected to be the same as for Corridor B – Red/Yellow.) AADT volumes on the Northeast Connector Expressway range from 5,700 (from US 192 [SR 500] to Hickory Tree Road [CR 534]) to 44,600 (from Cyrils Drive to Jack Brack Road). The weighted 2045 AADT for Corridor C – Blue/Cyan/Yellow (based on length) is 16,900.

Three roadway segments are projected to operate with a V/C ratio greater than 1.0 (see highlighted cells in Table 6-17), signifying that the demand exceeds the roadway capacity and significant congestion will result. Narcoossee Road (CR 15), north of Osceola Parkway Extension, is projected to have a V/C ratio of 1.08. Nova Road (CR 532), from Pine Grove Road to the Northeast Connector Expressway interchange, is projected to have a V/C ratio of 1.08. This portion of Nova Road (CR 532) is over capacity for all alternatives. Florida's Turnpike, from the Northeast Connector Expressway interchange north, is also over capacity (this condition occurs for Corridors B, C, D, and E but not the No-Build or Corridor A – Red). With the construction of the Southport Connector Expressway (west of Florida's Turnpike) and the Northeast Connector Expressway, future conditions show an increase in traffic volumes on Florida's Turnpike north of its interchange with these expressways. Corridor A – Red serves sufficient traffic to keep Florida's Turnpike under its capacity (with a V/C of 0.88); however, Corridor C – Blue/Cyan/Yellow results in Florida's Turnpike having a V/C ratio of 1.04.

Over-capacity conditions associated with the No-Build conditions are relieved on Narcoossee Road (CR 15) (from Rummell Road to Osceola Parkway Extension) and US 192 (SR 500) (from Narcoossee Road [CR 15] to Old Melbourne Highway [CR 500A]).

Table 6-17  
Corridor C – Blue/Cyan/Yellow Projected 2045 Design Traffic and Conditions

Roadway		# Of Lanes Assumed	Type Assumed <sup>(2)</sup>	Corridor B AADT	Corridor B V/C <sup>(3)</sup>
From <sup>(1)</sup>	To <sup>(1)</sup>				
Northeast Connector Expressway					
Cyrils Dr (A,B,C,D,E)	Jack Brack Rd (A,B,C,D,E)	4	Freeway	44,600	0.56
Jack Brack Rd (A,B,C,D,E)	Nova Rd (CR 532) (B,C,D,E)	4	Freeway	25,100	0.31
Nova Rd (CR 532) (B,C,D,E)	US 192 (SR 500) (A,B,C,D,E)	4	Freeway	13,500	0.17
US 192 (SR 500) (A,B,C,D,E)	Nolte Rd (A)	4	Freeway	5,700	0.07
Nolte Rd (A)	Deer Run (A)/Hickory Tree (CR 534) (B,C)	4	Freeway	5,700	0.07
Deer Run (A)/Hickory Tree (CR 534) (B,C)	Canoe Creek Rd (CR 523) (A,B,C,D,E)	4	Freeway	11,200	0.14



Roadway		# Of Lanes Assumed	Type Assumed <sup>(2)</sup>	Corridor B AADT	Corridor B V/C <sup>(3)</sup>
From <sup>(1)</sup>	To <sup>(1)</sup>				
Canoe Creek Rd (A,B,C,D,E)	Florida's Turnpike (A,B,C,D,E)	4	Freeway	32,900	0.41
Florida's Turnpike					
Canoe Creek Service Plaza	NEC Interchange (A,B,C,D,E)	4	Freeway	45,500	0.63
NEC Interchange (A,B,C,D,E)	Friars Cove Road	4	Freeway	83,200	1.04
Friars Cove Rd	Kissimmee Park Rd	4	Freeway	83,200	1.04
Canoe Creek Road (CR 523)					
Lake Cypress Rd	NEC Interchange (C,D,E)	4	Class I	10,600	0.25
NEC Interchange (C,D,E)	NEC Interchange (A,B)	4	Class I	17,300	0.41
NEC Interchange (A,B)	New Road to West	4	Class I	15,900	0.38
New Road to West	Mildred Bass Road	4	Class I	21,700	0.52
Mildred Bass Road					
Canoe Creek Rd	Story Rd	2	Class II	4,100	0.28
Narcoossee Road (CR 15)					
US 192 (SR 500)	Rummell Rd	4	Class I	22,800	0.55
Rummell Rd	Cyrils Dr	4	Class I	37,200	0.89
Cyrils Dr	Boggy Creek Rd	4	Class I	41,200	0.99
Boggy Creek Rd	Osceola Parkway Ext.	6	Class I	43,100	0.81
Osceola Parkway Ext.	SR 417	6	Class I	57,500	1.08
Hickory Tree Road (CR 534)					
US 192 (SR 500)	Nolte Rd	4	Class I	12,600	0.30
Nolte Rd	Deer Run Rd	4	Class I	11,600	0.28
Deer Run Rd	NEC Interchange (B,C)	4	Class I	2,600	0.06
NEC Interchange (B,C)	US 192 (SR 500)	2	Class I	7,900	0.42
Nolte Road					
Hickory Tree Rd (CR 534)	NEC Interchange (A)	4	Class I	8,900	0.21
NEC Interchange (A)	US 192 (SR 500)	2	Class I	8,400	0.45
US 192 (SR 500)					
Narcoossee Rd (CR 15)	Nova Rd (CR 532)	4	Class I	35,300	0.84
Nova Rd (CR 532)	NEC Interchange (A)	4	Class I	23,700	0.57
NEC Interchange (A)	Old Melbourne Highway (CR 500A)	4	Class I	23,700	0.57
Old Melbourne Highway (CR 500A)	NEC Interchange (B,C,D)	4	Class I	22,400	0.54
NEC Interchange (B,C,D)	Hickory Tree Rd (CR 534)	4	Class I	24,600	0.59
Hickory Tree Rd (CR 534)	NEC Interchange (E)	4	Uninterrupted	27,200	0.37
NEC Interchange (E)	US 441	4	Uninterrupted	19,900	0.29
Old Melbourne Highway (CR 500A)					
US 192 (SR 500)	Lake Conlin Rd	2	Class I	6,400	0.34
Nova Road (CR 532)					
US 192 (SR 500)	Pine Grove Rd	2	Class I	15,900	0.85
Pine Grove Rd	NEC Interchange (B,C,D,E)	2	Class I	20,100	1.08
NEC Interchange (B,C,D,E)	East	2	Uninterrupted	16,800	0.50

Notes:

- 1) Letter (i.e., A,B,C,D,E) references relevant corridor associated with location. The corridors are identified in Section 6.6.
- 2) Type of facility used to determine daily capacity in FDOT Generalized Annual Average Daily Volumes
- 3) Capacity based on FDOT Generalized Annual Average Daily Volume at level of service (LOS) E

## 6.6.4 Corridor D – Blue/Brown/Yellow

### 6.6.4.1 Alignment Location

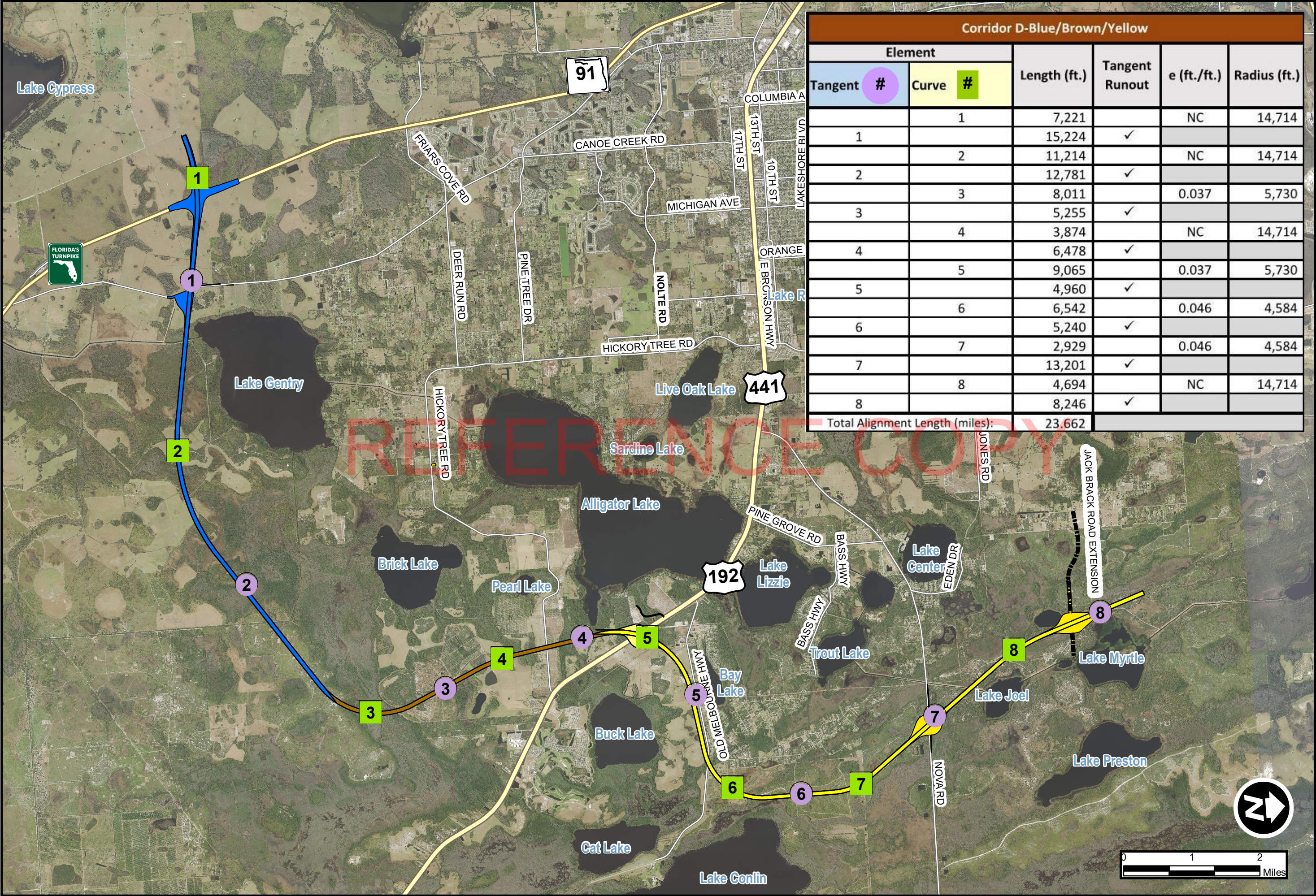
Corridor D – Blue/Brown/Yellow is shown on Figure 6-14. Corridor D – Blue/Brown/Yellow begins at a proposed interchange with Florida’s Turnpike and traverses in an easterly direction to a proposed interchange with Canoe Creek Road (CR 523). It continues in an easterly direction, south of Lake Gentry, and crosses the C-34 canal. It then continues in a northeasterly direction south of Buck Lake and continues in a northerly direction to a proposed interchange with US 192 (SR 500). Corridor D – Blue/Brown/Yellow continues in an easterly direction south of Old Melbourne Highway (CR 500A) and then turns in a northerly direction west of Lake Conlin. It continues in a northwesterly direction to a proposed interchange with Nova Road (CR 532). It then continues in a northwesterly direction to a proposed interchange with the proposed extension of Jack Brack Road. The project terminates north of the proposed interchange with Jack Brack Road at the connection to the proposed Osceola Parkway Extension. The horizontal geometry is also shown in a table included on Figure 6-14. The concept plans for Corridor D – Blue/Brown/Yellow are contained in Appendix D.

### 6.6.4.2 Proposed Typical Section

The typical section for Corridor D – Blue/Brown/Yellow is the same as for Corridor A – Red and is shown on Figure 6-7.

REFERENCE COPY





Corridor D-Blue/Brown/Yellow					
Element		Length (ft.)	Tangent Runout	e (ft./ft.)	Radius (ft.)
Tangent #	Curve #				
	1	7,221		NC	14,714
1		15,224	✓		
	2	11,214		NC	14,714
2		12,781	✓		
	3	8,011		0.037	5,730
3		5,255	✓		
	4	3,874		NC	14,714
4		6,478	✓		
	5	9,065		0.037	5,730
5		4,960	✓		
	6	6,542		0.046	4,584
6		5,240	✓		
	7	2,929		0.046	4,584
7		13,201	✓		
	8	4,694		NC	14,714
8		8,246	✓		
Total Alignment Length (miles):		23.662			



#### 6.6.4.3 Proposed Interchanges

The location and types of interchanges for Corridor D – Blue/Brown/Yellow are shown in Table 6-18.

Table 6-18  
Corridor D – Blue/Brown/Yellow Interchange Type and Location

Location No.	Cross Road	Interchange Type
I-1	Florida's Turnpike	Full Directional System to System
I-10	Canoe Creek Road (CR 523)	Modified Diamond
I-7	US 192 (SR 500)	Diamond
I-8	Nova Road (CR 532)	Diamond
I-9	Jack Brack Road	Diamond

#### 6.6.4.4 Proposed Structures

Bridge structures occur at interchanges, road crossings, major gas mains, and canal crossings. The location, type of crossing and the type of anticipated bridge structure are shown in Table 6-19.

Table 6-19  
Corridor D – Blue/Brown/Yellow  
Bridge Structure Location, Type of Crossing and Type of Bridge Structure

Location No.	Cross Feature	Type of Crossing	Type of Bridge Structure
I-1	Florida's Turnpike	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
I-10	Canoe Creek Road (CR 523)	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
1	C-34 Canal	Canal Crossing	Concrete Deck / Prestressed Girder - Simple Span
1A	Canal	Canal Crossing	Concrete Deck / Steel Girder - Simple Span, Curved
1B	Canal	Canal Crossing	Pre-cast Concrete Slab - Simple Span
1C	Canal	Canal Crossing	Concrete Deck / Prestressed Girder - Simple Span
22	Hickory Tree Road (CR 534)	Cross Road	Concrete Deck / Prestressed Girder - Simple Span
I-7	US 192 (SR 500)	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
13A	Northeast of US 192 (SR 500)	FGT Gas Main	Concrete Deck / Steel Girder - Simple Span, Curved
13	Old Melbourne Hwy (CR 500A)	Cross Road	Concrete Deck / Steel Girder - Simple Span, Curved
14	Lake Conlin Road	Wildlife Crossing	Pre-cast Concrete Slab - Simple Span
I-8	Nova Road (CR 532)	Interchange	Concrete Deck / Prestressed Girder - Simple Span
15	C-32 Canal	Canal Crossing	Concrete Deck / Prestressed Girder - Simple Span
I-9	Jack Brack Road	Interchange	Concrete Deck / Prestressed Girder - Simple Span



#### 6.6.4.5 Maintenance of Access – Driveway Connections

There are no modifications to the existing roadway system or driveways for Corridor D – Blue/Brown/Yellow.

#### 6.6.4.6 Drainage and Stormwater Considerations

The stormwater ponds for Corridor – D Blue/Brown/Yellow mainline, including the five interchanges, were sized to accommodate 532 acres of net additional impervious area, which assumes a fully paved median. The required treatment volume is 201 acre-feet and includes the additional 50% volume to accommodate the Lake Okeechobee BMAP criteria. The proposed improvements are estimated to impact 460 acres of floodplain and provide compensating storage of 1,049 acre-feet. Corridor – D Blue/Brown/Yellow was subdivided into a total of 19 onsite mainline basins, which result in a total required pond area of 456.0 acres, which is equivalent to 19 acres of ponds per mile of alignment. The five proposed interchanges result in 112 acres of required pond area. It is estimated that there is sufficient infield area to accommodate a majority of the interchange required pond area; however, an additional 61.8 acres of right-of-way will be needed for the Florida's Turnpike pond. The total required pond area for the mainline and five interchanges is 567.5 acres with 518 acres of additional right-of-way needed. The summary of required volumes and required pond area for each basin is provided in Table 6-20. Please refer to Appendix F for additional clarification on the pond sizing methodology as well as the supporting calculations.

Table 6-20  
Corridor D – Blue/Brown/Yellow Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac)
Blue/Brown/Yellow01	14.3	21.4	14.5	50.2	21.0
Blue/Brown/Yellow02	6.7	6.8	46.8	60.3	25.2
Blue/Brown/Yellow03	7.2	9.7	345.0	361.9	147.3
Blue/Brown/Yellow04	25.9	26.0	297.0	348.9	142.1
Blue/Brown/Yellow05	7.0	8.4	67.6	83.0	34.4
Blue/Brown/Yellow06	4.6	7.1	18.8	30.5	12.9
Blue/Brown/Yellow07	2.6	4.3	0.0	6.9	3.1
Blue/Brown/Yellow08	2.4	5.8	7.1	15.3	6.7
Blue/Brown/Yellow09	7.5	6.6	0.0	14.1	6.1
Blue/Brown/Yellow10	1.6	2.0	0.0	3.6	1.7
Blue/Brown/Yellow11	4.5	8.4	0.0	12.9	5.6
Blue/Brown/Yellow12	4.4	7.0	8.4	19.8	8.5
Blue/Brown/Yellow13	1.9	4.0	0.8	6.7	3.0
Blue/Brown/Yellow14	3.8	7.8	0.0	11.6	5.1

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac)
Blue/Brown/Yellow15	4.1	5.1	0.6	9.8	4.3
Blue/Brown/Yellow16	1.9	2.4	3.0	7.3	3.3
Blue/Brown/Yellow17	3.6	8.1	25.2	36.9	15.6
Blue/Brown/Yellow18	4.1	5.2	6.2	15.5	6.7
Blue/Brown/Yellow19	3.2	4.0	0.0	7.2	3.2
<b>Subtotal</b>	<b>111.3</b>	<b>150.1</b>	<b>841.0</b>	<b>1102.4</b>	<b>456.0</b>
<b>Interchanges</b>					
Blue/Brown/Yellow01_IC FL Turnpike	7.0	25.0	155.2	187.2	76.7
Blue/Brown/Yellow02_IC Canoe Creek Rd	0.8	4.1	14.9	19.8	8.5
Blue/Brown/Yellow09_IC US 192 (SR 500)	0.0	7.3	0.0	7.3	3.3
Blue/Brown/Yellow15_IC Nova Rd (CR 532)	1.1	7.3	3.8	12.2	5.4
Blue/Brown/Yellow18_IC Lake Myrtle	0.0	7.9	34.0	41.9	17.6
<b>Subtotal</b>	<b>8.9</b>	<b>51.6</b>	<b>207.9</b>	<b>268.4</b>	<b>111.5</b>
<b>Total</b>	<b>120.2</b>	<b>201.7</b>	<b>1048.9</b>	<b>1370.8</b>	<b>567.5</b>

The preliminary locations of the ponds are shown on the concept plans contained in Appendix D. As part of the location hydraulics analysis, locations were identified where significant offsite hydraulic conveyance is necessary in order to not adversely impact offsite properties. For Corridor D – Blue/Brown/Yellow, 16 crossings were identified and are summarized in Table 6-21. Corridor D – Blue/Brown/Yellow crosses the C-34 regulated floodway with a proposed bridge, which will require a FEMA No-Rise certification. Please refer to Appendix F for additional clarification on the location hydraulics methodology as well as the supporting calculations and specific locations.

Table 6-21  
Corridor D – Blue/Brown/Yellow Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size	Type
CD-TP01_PR	7' x 5'	CBC
CD-TP02_PR	3@ 8' x 4'	CBC
CD-118_PR	60"	Pipe
CD-206_PR	10' x 3'	CBC
CD-207_PR	6' x 4'	CBC



Cross Drain ID	Required Minimum Size	Type
CD-208_PR	6' x 4'	CBC
CD-209_PR	6' x 4'	CBC
CD-211_PR	8' x 4'	CBC
CD-212_PR	8' x 5'	CBC
CD-300_PR	6' x 4'	CBC
CD-301_PR	7' x 4'	CBC
CD-400_PR	7' x 5'	CBC
CD-401_PR	7' x 4'	CBC
CD-404_PR	7' x 5'	CBC
CD-405_PR	4@ 8' x 6'	CBC
CD-406_PR	6@ 10' x 7'	CBC

#### 6.6.4.7 Proposed Right-of-Way Needs

The total right-of-way width for Corridor D – Blue/Brown/Yellow is a minimum of 324 feet. The right-of-way width increases at the interchanges. The total right-of-way required for Corridor D – Blue/Brown/Yellow, including stormwater management and floodplain compensation ponds, is estimated to be 1,707 acres.

#### 6.6.4.8 Projected Design Year Traffic

The projected 2045 AADT and V/C ratios for Corridor D – Blue/Brown/Yellow are summarized in Table 6-22. AADT volumes on the Northeast Connector Expressway range from 4,800 (from US 192 [SR 500] to Canoe Creek Road [CR 523]) to 44,800 (from Cyrils Drive to Jack Brack Road). The weighted 2045 AADT for Corridor D – Blue/Brown/Yellow (based on length) is 13,900.

Three roadway segments are projected to operate with a V/C ratio greater than 1.0 (see highlighted cells in Table 6-22), signifying that the demand exceeds the roadway capacity and significant congestion will result. Narcoossee Road (CR 15), north of Osceola Parkway Extension, is projected to have a V/C ratio of 1.07. Nova Road (CR 532), from Pine Grove Road to the Northeast Connector Expressway interchange, is projected to have a V/C ratio of 1.09. This portion of Nova Road (CR 532) is over capacity for all alternatives. Florida's Turnpike, from the Northeast Connector Expressway interchange north, is also over capacity (this condition occurs for Corridors B, C, D, and E but not the No-Build or Corridor A – Red). With the construction of the Southport Connector Expressway (west of Florida's Turnpike) and the Northeast Connector Expressway, future conditions show an increase in traffic volumes on Florida's Turnpike north of its interchange with these expressways. Corridor A – Red serves sufficient traffic to keep Florida's Turnpike under its capacity (with a V/C of 0.88); however, Corridor D – Blue/Brown/Yellow results in Florida's Turnpike having a V/C ratio of 1.02.

Over-capacity conditions associated with the No-Build conditions are relieved on Narcoossee Road (CR 15) (from Rummell Road to Osceola Parkway Extension) and US 192 (SR 500) (from Narcoossee Road [CR 15] to Old Melbourne Highway [CR 500A]).

Table 6-22  
Corridor D – Blue/Brown/Yellow  
Projected 2045 Design Traffic and Conditions

Roadway		# Of Lanes Assumed	Type Assumed <sup>(2)</sup>	Corridor D AADT	Corridor D V/C <sup>(3)</sup>
From <sup>(1)</sup>	To <sup>(1)</sup>				
Northeast Connector Expressway					
Cyrils Dr (A,B,C,D,E)	Jack Brack Rd (A,B,C,D,E)	4	Freeway	44,800	0.56
Jack Brack Rd (A,B,C,D,E)	Nova Rd (CR 532) (B,C,D,E)	4	Freeway	24,900	0.31
Nova Rd (CR 532) (B,C,D,E)	US 192 (SR 500) (A,B,C,D,E)	4	Freeway	12,900	0.16
US 192 (SR 500) (A,B,C,D,E)	Nolte Rd (A)	4	Freeway	4,800	0.06
Nolte Rd (A)	Deer Run (A)/Hickory Tree (CR 534) (B,C)	4	Freeway	4,800	0.06
Deer Run (A)/Hickory Tree (CR 534) (B,C)	Canoe Creek Rd (CR 523) (A,B,C,D,E)	4	Freeway	4,800	0.06
Canoe Creek Rd (CR 523) (A,B,C,D,E)	Florida's Turnpike (A,B,C,D,E)	4	Freeway	28,800	0.36
Florida's Turnpike					
Canoe Creek Service Plaza	NEC Interchange (A,B,C,D,E)	4	Freeway	45,500	0.63
NEC Interchange (A,B,C,D,E)	Friars Cove Road	4	Freeway	81,600	1.02
Friars Cove Rd	Kissimmee Park Rd	4	Freeway	81,600	1.02
Canoe Creek Road (CR 523)					
Lake Cypress Rd	NEC Interchange (C,D,E)	4	Class I	10,600	0.25
NEC Interchange (C,D,E)	NEC Interchange (A,B)	4	Class I	17,300	0.41
NEC Interchange (A,B)	New Road to West	4	Class I	16,100	0.39
New Road to West	Mildred Bass Road	4	Class I	24,500	0.59
Mildred Bass Road					
Canoe Creek Rd (CR 523)	Story Rd	2	Class II	6,900	0.47
Narcoossee Road (CR 15)					
US 192 (SR 500)	Rummell Rd	4	Class I	23,000	0.55
Rummell Rd	Cyrils Dr	4	Class I	37,400	0.89
Cyrils Dr	Boggy Creek Rd	4	Class I	41,400	0.99
Boggy Creek Rd	Osceola Parkway Ext.	6	Class I	43,100	0.81
Osceola Parkway Ext.	SR 417	6	Class I	57,400	1.07
Hickory Tree Road (CR 534)					
US 192 (SR 500)	Nolte Rd	4	Class I	12,600	0.30
Nolte Rd	Deer Run Rd	4	Class I	13,400	0.32
Deer Run Rd	NEC Interchange (B,C)	4	Class I	3,900	0.09
NEC Interchange (B,C)	US 192 (SR 500)	2	Class I	3,900	0.21
Nolte Road					
Hickory Tree Rd (CR 534)	NEC Interchange (A)	4	Class I	11,600	0.28
NEC Interchange (A)	US 192 (SR 500)	2	Class I	11,200	0.60
US 192 (SR 500)					
Narcoossee Rd (CR 15)	Nova Rd (CR 532)	4	Class I	35,300	0.84
Nova Rd (CR 532)	NEC Interchange (A)	4	Class I	25,700	0.61
NEC Interchange (A)	Old Melbourne Highway	4	Class I	25,700	0.61



Roadway		# Of Lanes Assumed	Type Assumed <sup>(2)</sup>	Corridor D AADT	Corridor D V/C <sup>(3)</sup>
From <sup>(1)</sup>	To <sup>(1)</sup>				
	(CR 500A)				
Old Melbourne Highway (CR 500A)	NEC Interchange (B,C,D)	4	Class I	21,100	0.50
NEC Interchange (B,C,D)	Hickory Tree Rd (CR 534)	4	Class I	28,300	0.68
Hickory Tree Rd (CR 534)	NEC Interchange (E)	4	Uninterrupted	26,800	0.37
NEC Interchange (E)	US 441	4	Uninterrupted	19,500	0.28
Old Melbourne Highway (CR 500A)					
US 192 (SR 500)	Lake Conlin Rd	2	Class I	6,400	0.34
Nova Road (CR 532)					
US 192 (SR 500)	Pine Grove Rd	2	Class I	16,600	0.89
Pine Grove Rd	NEC Interchange (B,C,D,E)	2	Class I	20,200	1.09
NEC Interchange (B,C,D,E)	East	2	Uninterrupted	16,800	0.50

Notes:

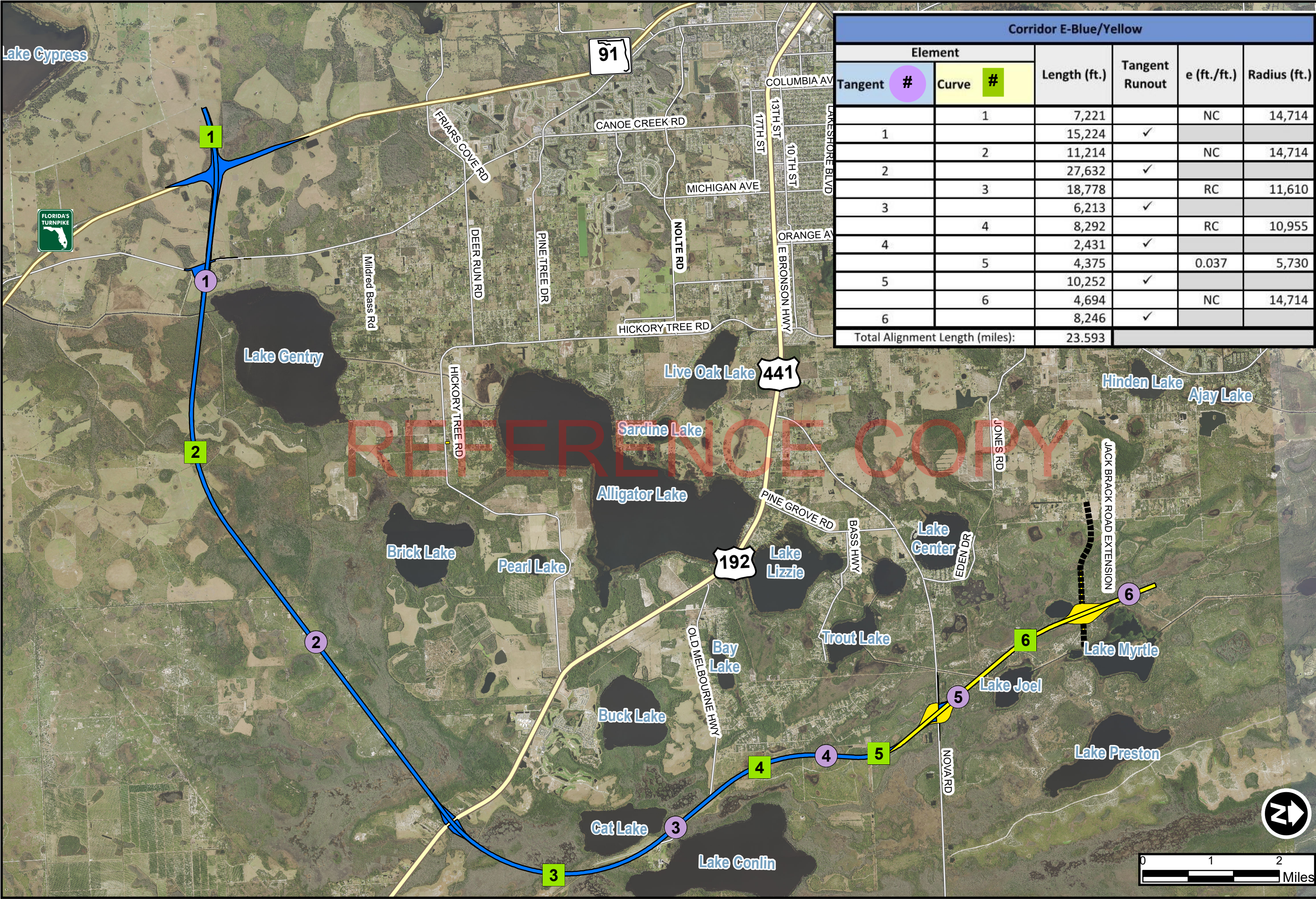
- 1) Letter (i.e., A,B,C,D,E) references relevant corridor associated with location. The corridors are identified in Section 6.6.
- 2) Type of facility used to determine daily capacity in FDOT Generalized Annual Average Daily Volumes
- 3) Capacity based on FDOT Generalized Annual Average Daily Volume at level of service (LOS) E

## 6.6.5 Corridor E – Blue/Yellow

### 6.6.5.1 Alignment Location

Corridor E – Blue/Yellow is shown on Figure 6-15. Corridor E – Blue/Yellow begins at a proposed interchange with Florida's Turnpike and traverses in an easterly direction to a proposed interchange with Canoe Creek Road (CR 523). It continues in an easterly direction, south of Lake Gentry, and crosses the C-34 canal. It then continues in a northeasterly direction south of Buck Lake to a proposed interchange with US 192 (SR 500). Corridor E – Blue/Yellow continues in a northerly direction between Cat Lake and Lake Conlin. It continues in a northwesterly direction to a proposed interchange with Nova Road (CR 532). It then continues in a northwesterly direction to a proposed interchange with the proposed extension of Jack Brack Road. The project terminates north of the proposed interchange with Jack Brack Road at the connection to the proposed Osceola Parkway Extension. The horizontal geometry is also shown in a table included on Figure 6-15. The concept plans for Corridor E – Blue/Yellow are contained in Appendix E.





Corridor E-Blue/Yellow					
Element		Length (ft.)	Tangent Runout	e (ft./ft.)	Radius (ft.)
Tangent #	Curve #				
	1	7,221		NC	14,714
1		15,224	✓		
	2	11,214		NC	14,714
2		27,632	✓		
	3	18,778		RC	11,610
3		6,213	✓		
	4	8,292		RC	10,955
4		2,431	✓		
	5	4,375		0.037	5,730
5		10,252	✓		
	6	4,694		NC	14,714
6		8,246	✓		
Total Alignment Length (miles):		23.593			



#### 6.6.5.2 Proposed Typical Section

The typical section for Corridor E – Blue/Yellow is the same as for Corridor A – Red and is shown on Figure 6-7.

#### 6.6.5.3 Proposed Interchanges

The location and types of interchanges for Corridor E – Blue/Yellow are shown in Table 6-23.

Table 6-23  
Corridor E – Blue/Yellow Interchange Type and Location

Location No.	Cross Road	Interchange Type
I-1	Florida's Turnpike	Full Directional System to System
I-10	Canoe Creek Road (CR 523)	Modified Diamond
I-12	US 192 (SR 500)	Diamond
1-8	Nova Road (CR 532)	Diamond
1-9	Jack Brack Road	Diamond

#### 6.6.5.4 Proposed Structures

Bridge structures occur at interchanges, road crossings, major gas mains, and canal crossings. The location, type of crossing and the type of anticipated bridge structure are shown in Table 6-24.

Table 6-24  
Corridor E – Blue/Yellow  
Bridge Structure Location, Type of Crossing and Type of Bridge Structure

Location No.	Cross Feature	Type of Crossing	Type of Bridge Structure
I-1	Florida's Turnpike	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
I-10	Canoe Creek Road (CR 523)	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
1	C-34 Canal	Canal Crossing	Concrete Deck / Prestressed Girder - Simple Span
1A	Canal	Canal Crossing	Concrete Deck / Steel Girder - Simple Span, Curved
1B	Canal	Canal Crossing	Pre-cast Concrete Slab - Simple Span
1C	Canal	Canal Crossing	Concrete Deck / Prestressed Girder - Simple Span
2	South of US 192 (SR 500)	Wildlife Crossing	Concrete Deck / Prestressed Girder - Simple Span
I-12	US 192 (SR 500)	Interchange	Concrete Deck / Steel Girder - Simple Span, Curved
3A	Northeast of US 192 (SR 500)	FGT Gas Main	Concrete Deck / Steel Girder - Simple Span, Curved
3	Canal	Canal Crossing	Concrete Deck / Steel Girder - Simple Span, Curved
4	Old Melbourne Hwy (CR 500A)	Cross Road	Concrete Deck / Steel Girder - Simple Span, Curved
5	Old Melbourne Hwy (CR 500A)	Cross Road	Concrete Deck / Steel Girder - Simple Span, Curved

6	N. of Old Melbourne Hwy (CR 500A)	Wildlife Crossing	Pre-cast Concrete Slab - Simple Span
I-8	Nova Road (CR 532)	Interchange	Concrete Deck / Prestressed Girder - Simple Span
15	C-32	Canal Crossing	Concrete Deck / Prestressed Girder - Simple Span
I-9	Jack Brack Road	Interchange	Concrete Deck / Prestressed Girder - Simple Span

#### 6.6.5.5 Maintenance of Access – Driveway Connections

There are no modifications to the existing roadway system or driveways for Corridor E – Blue/Yellow.

#### 6.6.5.6 Drainage and Stormwater Considerations

The stormwater ponds for Corridor E – Blue/Yellow mainline, including the five interchanges, were sized to accommodate 528 acres of net additional impervious area, which assumes a fully paved median. The required treatment volume is 200 acre-feet and includes the additional 50% volume to accommodate the Lake Okeechobee BMAP criteria. The proposed improvements are estimated to impact 613 acres of floodplain and provide compensating storage of 1,208 acre-feet. Corridor E – Blue/Yellow was subdivided into a total of 17 onsite mainline basins, which result in a total required pond area of 518.6 acres, which is equivalent to 21 acres of ponds per mile of alignment. The five proposed interchanges result in 118 acres of required pond area. It is estimated that there is sufficient infield area to accommodate a majority of the interchange required pond area; however, an additional 69 acres of right-of-way will be needed for the Florida's Turnpike pond. The total required pond area for the mainline and five interchanges is 636.3 acres with 580 acres of additional right-of-way needed. The summary of required volumes and required pond area for each basin is provided in Table 6-25. Please refer to Appendix F for additional clarification on the pond sizing methodology as well as the supporting calculations.

Table 6-25  
Corridor E – Blue/Yellow Pond Sizing Summary

Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac)
Blue/Yellow01	14.3	21.4	14.5	50.2	21.0
Blue/Yellow02	6.7	6.8	46.8	60.3	25.2
Blue/Yellow03	7.2	9.7	345.0	361.9	147.3
Blue/Yellow04	26.3	26.1	297.0	349.4	142.3
Blue/Yellow05	10.7	8.1	25.8	44.6	18.7
Blue/Yellow06	2.0	5.2	49.1	56.3	23.5
Blue/Yellow07	5.1	5.2	8.5	18.8	8.1
Blue/Yellow08	7.3	10.2	29.0	46.5	19.5
Blue/Yellow09	4.4	5.6	11.5	21.5	9.2



Basin	Required Attenuation Volume	Required Treatment Volume	Required Floodplain Compensation Volume	Total Required Pond Volume	Required Pond Area
	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac)
Blue/Yellow10	5.4	8.9	9.7	24.0	10.3
Blue/Yellow11	11.1	11.2	115.0	137.3	56.5
Blue/Yellow12	2.9	5.5	0.0	8.4	3.8
Blue/Yellow13	4.1	5.1	0.6	9.8	4.3
Blue/Yellow14	1.9	2.4	3.0	7.3	3.3
Blue/Yellow15	3.5	8.1	25.2	36.8	15.5
Blue/Yellow16	4.1	5.2	6.2	15.5	6.7
Blue/Yellow17	3.3	4.0	0.0	7.3	3.3
<b>Subtotal</b>	<b>120.3</b>	<b>148.7</b>	<b>986.9</b>	<b>1255.9</b>	<b>518.6</b>
<b>Interchanges</b>					
Blue/Yellow01_IC FL Turnpike	7.1	25.0	155.2	187.3	76.7
Blue/Yellow02_IC Canoe Creek Rd	0.8	4.1	14.9	19.8	8.5
Blue/Yellow07_IC US 192 (SR 500)	1.8	7.4	12.9	22.1	9.5
Blue/Yellow13_IC Nova Rd (CR 532)	1.1	7.3	3.8	12.2	5.4
Blue/Yellow16_IC Lake Myrtle	0.0	7.9	34.0	41.9	17.6
Subtotal	10.8	51.7	220.8	283.3	117.7
<b>Total</b>	<b>131.1</b>	<b>200.4</b>	<b>1207.7</b>	<b>1539.2</b>	<b>636.3</b>

The preliminary locations of the ponds are shown on the concept plans contained in Appendix E.

As part of the location hydraulics analysis, locations were identified where significant offsite hydraulic conveyance is necessary to not adversely impact offsite properties. For Corridor E – Blue/Yellow, 17 crossings were identified and are summarized in Table 6-26. Alignment Blue crosses the C-34 regulated floodway with a proposed bridge, which will require a FEMA No-Rise certification. Please refer to Appendix F for additional clarification on the location hydraulics methodology as well as the supporting calculations and specific locations.

Table 6-26  
Corridor E – Blue/Yellow Offsite Conveyance Summary

Cross Drain ID	Required Minimum Size	Type
CD-TP01_PR	7' x 5'	CBC
CD-TP02_PR	3@ 8' x 4'	CBC

Cross Drain ID	Required Minimum Size	Type
CD-118_PR	60"	Pipe
CD-208_PR	6' x 4'	CBC
CD-211_PR	8' x 4'	CBC
CD-212_PR	8' x 5'	CBC
CD-300_PR	6' x 4'	CBC
CD-301_PR	7' x 4'	CBC
CD-400_PR	7' x 5'	CBC
CD-401_PR	7' x 4'	CBC
CD-404_PR	7' x 5'	CBC
CD-500_PR	6' x 4'	CBC
CD-500B_PR	6@ 9' x 5'	CBC
CD-501_PR	7' x 5'	CBC
CD-502_PR	8' x 4'	CBC
CD-504_PR	2@ 9' x 4'	CBC
CD-505_PR	9' x 6'	CBC

#### 6.6.5.7 Proposed Right-of-Way Needs

The total right-of-way width for Corridor E – Blue/Yellow is a minimum of 324 feet. The right-of-way width increases at the interchanges. The total right-of-way required for Corridor E – Blue/Yellow, including stormwater management and floodplain compensation ponds, is estimated to be 1,758 acres.

#### 6.6.5.8 Projected Design Year Traffic

The projected 2045 AADT and V/C ratios for Corridor E – Blue/Yellow are summarized in Table 6-27. AADT volumes on the Northeast Connector Expressway range from 7,800 (from US 192 [SR 500] to Canoe Creek Road [CR 523]) to 42,800 (from Cyrils Drive to Jack Brack Road). The weighted 2045 AADT for Corridor E (based on length) is 13,900.

Three roadway segments are projected to operate with a V/C ratio greater than 1.0 (see highlighted cells in Table 6-27), signifying that the demand exceeds the roadway capacity and significant congestion will result. Narcoossee Road (CR 15), north of Osceola Parkway Extension, is projected to have a V/C ratio of 1.07. Nova Road (CR 532), from Pine Grove Road to the Northeast Connector Expressway interchange, is projected to have a V/C ratio of 1.10. This portion of Nova Road (CR 532) is over capacity for all alternatives. Florida's Turnpike, from the Northeast Connector Expressway interchange north, is also over capacity (this condition occurs for Corridors B, C, D, and E but not the No-Build or Corridor A – Red). With the construction of the Southport Connector Expressway (west of Florida's Turnpike) and the Northeast Connector Expressway, future conditions show an increase in traffic volumes on Florida's Turnpike north of its interchange



with these expressways. Corridor A – Red serves sufficient traffic to keep the Turnpike under its capacity (with a V/C of 0.88); however, Corridor E – Blue/Yellow results in the Turnpike having a V/C ratio of 1.05.

Over-capacity conditions associated with the No-Build conditions are relieved on Narcoossee Road (CR 15) (from Rummell Road to Osceola Parkway Extension) and US 192 (SR 500) (from Narcoossee Road [CR 15] to Old Melbourne Highway [CR 500A]).

Table 6-27  
Corridor E – Blue/Yellow  
Projected 2045 Design Traffic and Conditions

Roadway		# Of Lanes Assumed	Type Assumed <sup>(2)</sup>	Corridor C AADT	Corridor C V/C <sup>(3)</sup>
From <sup>(1)</sup>	To <sup>(1)</sup>				
Northeast Connector Expressway					
Cyrils Dr (A,B,C,D,E)	Jack Brack Rd (A,B,C,D,E)	4	Freeway	44,600	0.56
Jack Brack Rd (A,B,C,D,E)	Nova Rd (CR 532) (B,C,D,E)	4	Freeway	25,100	0.31
Nova Rd (CR 532) (B,C,D,E)	US 192 (SR 500) (A,B,C,D,E)	4	Freeway	13,500	0.17
US 192 (SR 500) (A,B,C,D,E)	Nolte Rd (A)	4	Freeway	5,700	0.07
Nolte Rd (A)	Deer Run (A)/Hickory Tree (CR 534) (B,C)	4	Freeway	5,700	0.07
Deer Run (A)/Hickory Tree (CR 534) (B,C)	Canoe Creek Rd (CR 523) (A,B,C,D,E)	4	Freeway	11,200	0.14
Canoe Creek Rd (CR 523) (A,B,C,D,E)	Florida's Turnpike (A,B,C,D,E)	4	Freeway	32,900	0.41
Florida's Turnpike					
Canoe Creek Service Plaza	NEC Interchange (A,B,C,D,E)	4	Freeway	45,500	0.63
NEC Interchange (A,B,C,D,E)	Friars Cove Road	4	Freeway	83,200	1.04
Friars Cove Rd	Kissimmee Park Rd	4	Freeway	83,200	1.04
Canoe Creek Road (CR 523)					
Lake Cypress Rd	NEC Interchange (C,D,E)	4	Class I	10,600	0.25
NEC Interchange (C,D,E)	NEC Interchange (A,B)	4	Class I	17,300	0.41
NEC Interchange (A,B)	New Road to West	4	Class I	15,900	0.38
New Road to West	Mildred Bass Road	4	Class I	21,700	0.52
Mildred Bass Road					
Canoe Creek Rd (CR 523)	Story Rd	2	Class II	4,100	0.28
Narcoossee Road (CR 15)					
US 192 (SR 500)	Rummell Rd	4	Class I	22,800	0.55
Rummell Rd	Cyrils Dr	4	Class I	37,200	0.89
Cyrils Dr	Boggy Creek Rd	4	Class I	41,200	0.99
Boggy Creek Rd	Osceola Parkway Ext.	6	Class I	43,100	0.81
Osceola Parkway Ext.	SR 417	6	Class I	57,500	1.08
Hickory Tree Road (CR 534)					
US 192 (SR 500)	Nolte Rd	4	Class I	12,600	0.30
Nolte Rd	Deer Run Rd	4	Class I	11,600	0.28
Deer Run Rd	NEC Interchange (B, C)	4	Class I	2,600	0.06
NEC Interchange (B, C)	US 192 (SR 500)	2	Class I	7,900	0.42
Nolte Road					
Hickory Tree Rd (CR 534)	NEC Interchange (A)	4	Class I	8,900	0.21

Roadway		# Of Lanes Assumed	Type Assumed <sup>(2)</sup>	Corridor C AADT	Corridor C V/C <sup>(3)</sup>
From <sup>(1)</sup>	To <sup>(1)</sup>				
NEC Interchange (A)	US 192 (SR 500)	2	Class I	8,400	0.45
US 192 (SR 500)					
Narcoossee Rd (CR 15)	Nova Rd (CR 532)	4	Class I	35,300	0.84
Nova Rd (CR 532)	NEC Interchange (A)	4	Class I	23,700	0.57
NEC Interchange (A)	Old Melbourne Highway (CR 500A)	4	Class I	23,700	0.57
Old Melbourne Highway (CR 500A)	NEC Interchange (B, C, D)	4	Class I	22,400	0.54
NEC Interchange (B, C, D)	Hickory Tree Rd (CR 534)	4	Class I	24,600	0.59
Hickory Tree Rd (CR 534)	NEC Interchange (E)	4	Uninterrupted	27,200	0.37
NEC Interchange (E)	US 441	4	Uninterrupted	19,900	0.29
Old Melbourne Highway (CR 500A)					
US 192 (SR 500)	Lake Conlin Rd	2	Class I	6,400	0.34
Nova Road (CR 532)					
US 192 (SR 500)	Pine Grove Rd	2	Class I	15,900	0.85
Pine Grove Rd	NEC Interchange (B, C, D, E)	2	Class I	20,100	1.08
NEC Interchange (B, C, D, E)	East	2	Uninterrupted	16,800	0.50

Notes:

- 1) Letter (i.e., A, B, C, D, E) references relevant corridor associated with location. The corridors are identified in Section 6.6.
- 2) Type of facility used to determine daily capacity in FDOT Generalized Annual Average Daily Volumes
- 3) Capacity based on FDOT Generalized Annual Average Daily Volume at level of service (LOS) E

## 6.7 Summary Matrix-Mobility Alternatives Evaluation

The results of the corridor alternatives evaluation are summarized in Table 6-28 Table 6-29, and Table 6-30, respectively.



**Table 6-28**  
**Alternatives Matrix Evaluation: Part A**

<b>Design Element</b>	<b>Unit of Measure</b>	<b>Corridor A – Red</b>	<b>Corridor B – Red/Yellow</b>	<b>Corridor C – Blue/Cyan/Yellow</b>	<b>Corridor D – Blue/Brown/Yellow</b>	<b>Corridor E – Blue/Yellow</b>
Alternative Length (approximate)	Miles	16	19	21	23	23
Proposed Right-of-Way Width (general and varies at interchanges)	feet	324	324	324	324	324
Right-of-Way Area (including proposed ponds)	acres	1,349	1,447	1,581	1,707	1,758
Proposed Bridges (total structures per Alternative and total length of all structures)	Number of Structures	32	42	38	36	40
	feet	20,306	21,655	21,146	21,049	22,632
Proposed Interchanges	Number	5	6	6	5	5
Projected 2045 Annual AADT Volume (as a tolled facility)	vehicles	25,600	16,900	16,900	13,900	13,900

Table 6-29  
Alternatives Matrix Evaluation: Part B

Evaluation Criteria	Unit of Measure	Corridor A – Red	Corridor B – Red/Yellow	Corridor C – Blue/Cyan/Yellow	Corridor D – Blue/Brown/Yellow	Corridor E – Blue/Yellow
<b>Physical</b>						
Major Utility Conflicts - Existing	No. of Conflicts	5	5	3	3	2
Major Utility Conflicts - Planned	No. of Conflicts	8	5	0	0	0
Contamination Sites & Facilities	No. of Conflicts	2	0	0	0	1
Railroad Involvement	No. of Conflicts	0	0	0	0	0
<b>Cultural Environment</b>						
Public Lands	acres	1	0	0	0	0
Section 4(f) Coordination Required (Public Recreation Lands, Wildlife Refuges, etc.)	Y/N	N	N	N	N	N
Potential Historic Resources	No. of Conflicts	16	4	3	2	0
Potential Historic Linear Resources (Canals/Highways/Railroads)	No. of Resources	2	5	6	5	5
Potential Archaeological Resources	No. of Resources	0	0	0	0	0
<b>Natural Environment</b>						
Water Features						
Ponds / Lakes	acres	11	13	14	9	6
Canals/Regulated Floodways	No. of Conflicts	1	3	3	2	2
Flood Hazard Areas - 100 Year Floodplain	acres	417	344	409	460	613
Wetlands (non-forested and forested)	acres	139	211	232	324	357
Potential Habitat - Federal Listed Species	acres	1,044	1,153	1,077	1,249	1,180
Potential Habitat - State Listed Species	acres	1,109	1,216	1,207	1,206	1,256
Potential Bald Eagle Nest	Y/N	Y	N	N	N	N
Potential Species Impacts (composite rating)	Rating	High	Medium	High	High	High
Mitigation Banks						
Lake X Ranch Mitigation Bank	acres	0	92	92	92	150
Conservation Easements	acres	0	0	0	0	0



Evaluation Criteria	Unit of Measure	Corridor A – Red	Corridor B – Red/Yellow	Corridor C – Blue/Cyan/Yellow	Corridor D – Blue/Brown/Yellow	Corridor E – Blue/Yellow
<b>Social</b>						
Right-of-Way Area (including proposed ponds)	acres	1,349	1,447	1,581	1,707	1,758
Potential Residential Impacts (includes partially impacted parcels)	Total Parcels	365	74	22	28	3
<i>Existing</i>	<i>Parcels</i>	181	55	3	9	3
<i>Planned</i>	<i>Parcels</i>	186	19	19	19	0
Potential Non-Residential Impacts (includes partially impacted parcels)	Total Parcels	232	152	141	118	122
<i>Existing</i>	<i>Parcels</i>	232	151	140	117	122
<i>Planned</i>	<i>Parcels</i>	0	1	1	1	0
Community Facilities	No. of Conflicts	2	0	0	0	0
Parks and Recreational Facilities (public and private)	No. of Conflicts	1	0	0	0	0
Trails	No. of Conflicts	2	5	5	5	7
Community Cohesion Effects	Ranking	Medium	Medium	Low	Low	Low
Socioeconomic Impacts to Special Populations	Ranking	Medium	Low	Low	Low	Low
Proposed Development / Development of Regional Impact	acres	622	761	806	890	887

**Table 6-30**  
**Alternatives Matrix Evaluation: Part C**

<b>Cost Element</b>	<b>Corridor A – Red</b>	<b>Corridor B – Red/Yellow</b>	<b>Corridor C – Blue/Cyan/Yellow</b>	<b>Corridor D – Blue/Brown/Yellow</b>	<b>Corridor E – Blue/Yellow</b>
Roadway Construction	\$339,400,000	\$372,000,000	\$393,200,000	\$488,500,000	\$500,600,000
Bridges Construction	\$67,600,000	\$92,500,000	\$79,900,000	\$73,200,000	\$98,400,000
Interchanges Construction	\$457,800,000	\$475,200,000	\$519,800,000	\$483,200,000	\$493,400,000
Toll Collection Equipment	\$5,100,000	\$5,100,000	\$5,100,000	\$5,100,000	\$5,100,000
Right-of-Way (including ponds)	\$298,900,000	\$242,600,000	\$210,600,000	\$201,600,000	\$210,800,000
Mitigation, Wetlands, & Wildlife	\$26,900,000	\$64,800,000	\$67,400,000	\$80,100,000	\$100,700,000
<b>Total</b>	<b>\$1,195,700,000</b>	<b>\$1,252,200,000</b>	<b>\$1,276,000,000</b>	<b>\$1,331,700,000</b>	<b>\$1,409,000,000</b>

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## 7. Anticipated Effects

### 7.1 Natural Environment

Potential adverse effects to natural resources that may be affected by the proposed build alternatives are evaluated in this section. The identification and assessment of potential effects to protected species and habitats, wetlands and surface waters, and public/conservation lands were evaluated.

#### 7.1.1 Water Resources

The USFWS NWI GIS database was used to identify wetlands and surface waters within the project study area. Surface waters were identified as a lake or riverine systems generally comprised of open water with little vegetation limited to littoral zones, such as lakes, canals, and ponds. Wetlands were identified in the NWI as either freshwater emergent (herbaceous) or freshwater forested/shrub.

##### 7.1.1.1 Surface Waters

Surface water impacts for each of the corridor alignment alternatives were calculated. These impacts are summarized in Table 7-1.

Table 7-1  
Surface Water Features Impacts

Corridor	Ponds/Lakes (Acres)	Canals/Regulated Floodways (Number of Conflicts)
Corridor A – Red	11	1
Corridor B – Red/Yellow	13	3
Corridor C – Blue/Cyan/Yellow	14	3
Corridor D – Blue/Brown/Yellow	9	2
Corridor E – Blue/Yellow	6	2

##### 7.1.1.2 Floodplains

Floodplain impacts and the needed floodplain compensation volumes were calculated for each of the corridor alignment alternatives. These impacts are summarized in Table 7-2.

Table 7-2  
Floodplain Impacts

Corridor	Floodplain Impacts (Acres)	Floodplain Compensating Storage (Ac.-Ft.)
Corridor A – Red	417	594
Corridor B – Red/Yellow	344	553
Corridor C – Blue/Cyan/Yellow	409	785
Corridor D – Blue/Brown/Yellow	460	1049
Corridor E – Blue/Yellow	613	1208

#### 7.1.1.3 Groundwater

Since stormwater runoff from the project will be treated in stormwater facilities in accordance with applicable water management district rules and regulations, the effect on groundwater from the project is expected to be minimal.

#### 7.1.2 Wetlands and Hydric Soils

The NWI database shows several large wetland communities, classified as freshwater emergent or freshwater forested, within the study area, as shown on Figure 3-2. These wetland classifications are based on substrate material, vegetation, and flooding regime and match the regulatory definition utilized by the USEPA and USACE for administering the permitting program under Section 404 of the Clean Water Act which states, “Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

Wetlands within the study area are primarily comprised of large forested systems making up linear sloughs dominated by cypress (*Taxodium* sp.) within the interior and transitioning into a mixture of hardwoods and pines through the exteriors and riparian areas. While field reviews sufficient to assess the qualitative aspects of wetlands within the study area were not conducted, wetlands within the eastern portions of the study area were assumed to be generally of higher quality than those in the western portion. This is primarily due to size, adjacent land uses, proximity to developed areas/upland buffers, wildlife utilization/documentation through literature reviews and available GIS data, and connectivity to regionally significant systems such as the Econlockhatchee River system. Table 7-3 below summarizes the anticipated direct wetland impacts within the study area.



Table 7-3  
Summary of Wetland Impacts per Corridor

Corridor	Forested Impacts (ac)	Non-Forested Impacts (ac)	Freshwater Pond Impacts (ac)	Riverine Impacts (ac)	Lake Impacts (ac)
Corridor A – Red	65	74	11	0	0
Corridor B – Red/Yellow	158	51	10	2	3
Corridor C – Blue/Cyan/Yellow	181	47	11	4	3
Corridor D – Blue/Brown/Yellow	277	45	8	2	1
Corridor E – Blue/Yellow	297	58	5	2	1

### 7.1.3 Farmlands

The FDOT PD&E Manual defines farmlands as prime or unique farmlands as defined in Title 7 Code of Federal Regulations (CFR) § 658.2(a), or farmland that is determined by appropriate state or unit of local government agency or agencies with concurrence of the USDA Secretary to be farmland of statewide or local importance. The impact of each of the alternative corridors on farmlands has been calculated and is shown in Table 7-4.

Table 7-4  
Impacted Prime or Unique Farmlands (acres)

Corridor	Impacted Prime or Unique Farmlands (ac)
Corridor A – Red	234
Corridor B – Red/Yellow	212
Corridor C – Blue/Cyan/Yellow	174
Corridor D – Blue/Brown/Yellow	233
Corridor E – Blue/Yellow	156

### 7.1.4 Threatened and Endangered Species

A review of available GIS and published information from both the USFWS and FWC was performed to identify any potential for threatened or endangered species to occur within the

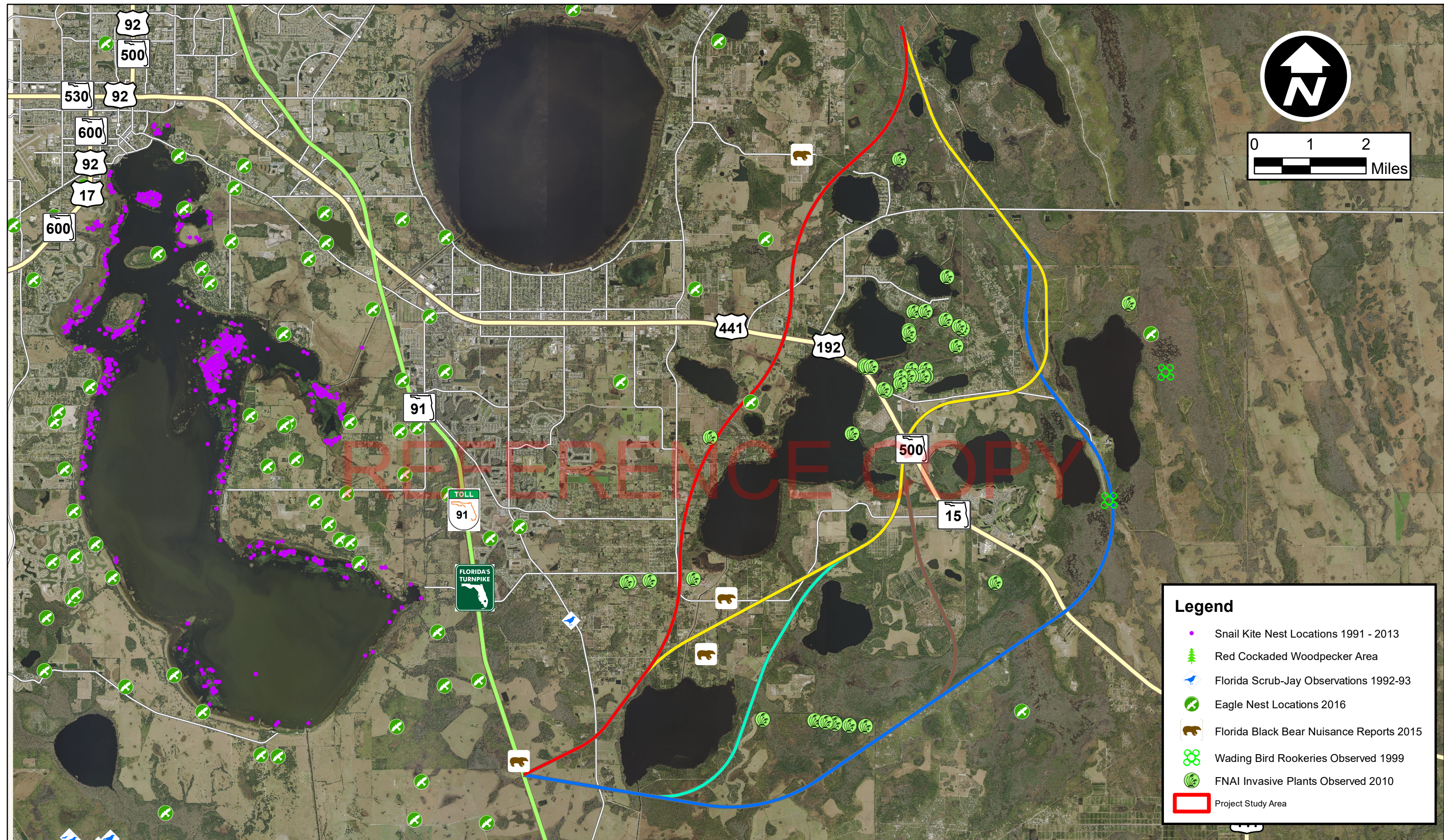
study area, as shown on Figure 7-1. This review also considered certain environmentally sensitive resources like consultation areas, critical habitats, and essential fish habitats.

Several federal and state listed species have the potential to occur within the study area. The entire study area is located within consultation areas for the Federally Threatened Audubon's crested caracara, Federally Endangered Everglade snail kite, Federally Endangered Florida grasshopper sparrow, Lake Wales Ridge plants, Federally Endangered red-cockaded woodpecker, and the Federally Threatened Florida scrub-jay.

Three federally protected bald eagle nests are located in the study area near Sardine Lake, Lake Conlin, and the Econlockhatchee River. A colony of red-cockaded woodpeckers is located within the TM Econ Mitigation Bank. A wading bird rookery historically occurred within the Lake X Ranch Mitigation Bank. Seven wood stork nesting colony core foraging areas fall within the study area. Additionally, Florida scrub-jays historically occurred just outside of and may occur within the study area, because similarly contiguous "scrub-jay habitats" exist within the study area. These "scrub-jay habitats", characterized by permeable soils with drought-tolerant scrub-oak species and other upland habitats, may be used by state threatened gopher tortoises. The prairie habitats may be used by state threatened Florida burrowing owls. Wetlands and lakes may be used as foraging or nesting sites by various wading birds, including the Everglade snail kite, and state threatened Florida sandhill crane and little blue heron. Most of the study area may provide habitats for the federally threatened eastern indigo snake and state threatened Sherman's fox squirrel.

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The corridor descriptions include corridor-specific constraints associated with protected species. Issues facing the project area, such as consultation areas and wood stork Core Foraging Areas, are assumed to be uniform across the entire project study area. Additionally, areas identified as suitable habitat for protected species are assumed to be of uniform quality for assessment purposes and support uniform distribution of species within each habitat type (i.e., 1 acre of suitable caracara habitat is the same regarding quality, for this analysis, regardless of its location within the overall project study area).

To quantify listed species impacts, representative species were chosen based on habitat requirements identified in their respective conservation guidelines. Suitable habitat for each species was identified using the species' conservation guidelines and the land use/land cover dataset obtained from the SFWMD for Osceola County. Table 7-5 shows suitable habitat for representative species. The federally-listed species evaluated were the Audubon's crested caracara (*Polyborus plancus audubonii*) and the Florida scrub-jay (*Aphelocoma coerulescens*). State-listed species evaluated were the gopher tortoise (*Gopherus Polyphemus*) and the Florida sandhill crane (*Grus canadensis pratensis*).

Table 7-5  
Suitable Habitat for Representative Species

Species	Status	Suitable Habitat (FLUCFCS Level 3)
Audubon's Crested Caracara	FT	211, 212, 221, 224, 241, 251, 310, 320, 330
Florida Scrub-Jay	FT	211, 212, 213, 221, 310, 320, 321, 329, 330
Gopher Tortoise	ST	162, 185, 211, 212, 213, 221, 224, 251, 310, 320, 321, 329, 330, 411, 413, 421, 434, 441
Florida Sandhill Crane	ST	640, 641, 643, 644,

FT = Federally Threatened, ST = State Threatened

Corridor A – Red has a high potential for impacts to the protected species. Most notably, the corridor is within the 330-foot primary protection zone for one bald eagle nest (Nest No. OS122), which is located between Sardine Lake and Live Oak Lake and just west of Alligator Lake. The corridor also crosses several large areas of improved, unimproved, and wooded pasture, which has the potential to support nesting and foraging habitat for the Audubon's crested caracara.

Corridor B – Red/Yellow has a medium potential for impacts to protected species. The corridor bisects Hickory Tree Road (CR 534) in an area with multiple nuisance black bear reports, indicating a potential movement corridor for the species within the overall study area. The corridor also crosses several large areas of improved, unimproved, and wooded pasture, which has the potential to support nesting and foraging habitat for the Audubon's crested caracara. Portions of the corridor impact the Lake X Ranch Mitigation Bank.

Corridor C – Blue/Cyan/Yellow has a high potential for impacts to listed species. The corridor impacts the Big Bend Swamp/Holopaw Ranch Florida Forever potential acquisition, which serves as a corridor between Triple N WMA and Three Lakes WMA in Osceola County. Portions of the corridor also impact the Lake X Ranch Mitigation Bank. The corridor also crosses several large



areas of improved, unimproved, and wooded pasture, which has the potential to support nesting and foraging habitat for the Audubon's crested caracara.

Corridor D – Blue/Brown/Yellow has a high potential for impacts to listed species. The corridor impacts the Big Bend Swamp/Holopaw Ranch Florida Forever potential acquisition, which serves as a corridor between Triple N WMA and Three Lakes WMA in Osceola County. Portions of the corridor also impact the Lake X Ranch Mitigation Bank. The corridor also crosses several large areas of improved, unimproved, and wooded pasture, which has the potential to support nesting and foraging habitat for the Audubon's crested caracara.

Corridor E – Blue/Yellow has a high potential for impacts to listed species. As the easternmost corridor, Corridor E – Blue/Yellow impacts the most undeveloped areas and fragments the most habitat. Much of the corridor is within the Big Bend Swamp/Holopaw Ranch Florida Forever potential acquisition, which serves as a corridor between Triple N WMA and Three Lakes WMA in Osceola County. The corridor also crosses several large areas of improved, unimproved, and wooded pasture, which has the potential to support nesting and foraging habitat for the Audubon's crested caracara. Portions of the corridor impact the Lake X Ranch Mitigation Bank.

Each corridor was evaluated for its potential to impact listed species. Specifically, impact acreages were calculated for the four representative federal and state-listed species in order to conduct a comparative analysis between each corridor and not to make an overall effect determination. It should be noted that, while the comparison used only four listed species, wide-ranging species or those considered to be habitat generalists, such as the eastern indigo snake (*Drymarchon corais couperi*) or wood stork (*Mycteria americana*), have potential to occur within all corridors.

Table 7-6 depicts the impacts to suitable habitat identified for each representative species evaluated within each corridor based on the determination outlined in Section 7.1.4 above.

Table 7-6  
Potential Impacts to Representative Listed Species

Species	Corridor A – Red Impacts (ac)	Corridor B – Red/Yellow Impacts (ac)	Corridor C – Blue/Cyan/Yellow Impacts (ac)	Corridor D – Blue/Brown/Yellow Impacts (ac)	Corridor E – Blue/Yellow Impacts (ac)
Audubon's Crested Caracara	751	654	621	687	655
Florida Scrub-Jay	1034	1153	1119	1243	1180
Gopher Tortoise	1061	1167	1141	1141	1183
Florida Sandhill Crane	48	49	66	65	73

Impacts calculated to estimate potential mitigation costs were evaluated to ensure there was no overlap and they are not being "double counted". For example, areas exhibiting potential habitat

for both the Audubon's crested caracara and the Florida scrub-jay were determined, for calculation purposes, to be only one or the other. This determination was made by project ecologists following a review of available GIS data, aerial photo interpretation, proximity to and connectivity with suitable adjacent habitat, and known/documented occurrences of each species evaluated. Table 7-7 depicts the impacts to suitable habitat for each representative species following the review by project ecologists and removal of overlapping habitat.

Table 7-7  
Potential Impacts to Representative Listed Species Used for Mitigation Costing

Species	Corridor A- Red Impacts (ac)	Corridor B- Red/Yellow Impacts (ac)	Corridor C- Blue/Cyan/Yellow Impacts (ac)	Corridor D- Blue/Brown/Yellow Impacts (ac)	Corridor E- Blue/Yellow Impacts (ac)
Audubon's Crested Caracara	638	539	400	411	368
Florida Scrub-Jay	406	614	677	838	812
Gopher Tortoise	1061	1167	1141	1141	1183
Florida Sandhill Crane	48	49	66	65	73

Mitigation for impacts to listed species was calculated using an adjustment factor of 0.2 to capture the difference between occupied habitat versus that which is suitable. While much of the habitat within the project study area is suitable, or otherwise has potential to support listed species, it is not reasonable to assume 100 percent occupancy within all suitable habitat. Therefore, the application of the 0.2 adjustment factor assumes 20 percent occupancy within suitable habitat for each species assessed. Table 7-8 outlines the costs per acre of impact for each species assessed. Table 7-9 provides the mitigation costs for impacts to listed species for each corridor.

Table 7-8  
Costs Per Acre of Impact of Occupied Habitat for Listed Species

Species	Cost
Audubon's Crested Caracara	\$25,000 <sup>1</sup>
Florida Scrub-Jay	\$40,000 <sup>2</sup>
Gopher Tortoise	\$3,900 <sup>3</sup>
Florida Sandhill Crane	\$5,000 <sup>4</sup>

Notes: 1) Used for impacts to the USFWS-defined 1,500-meter nest protection buffer. 2) Assumes a mitigation ratio of 2:1 with a per-credit price of \$20,000. 3) Assumes a relocation cost per potentially-occupied burrow of \$1,300 with a density of 3 potentially-occupied burrows per acre of suitable habitat. 4) Assumes a mitigation ratio of 1:1 with a cost of \$5,000 per acre of nesting habitat only.



Table 7-9  
Mitigation Costs for Impacts to Listed Species

Species	Corridor A – Red Costs	Corridor B – Red/Yellow Costs	Corridor C – Blue/Cyan/Yellow Costs	Corridor D – Blue/Brown/Yellow Costs	Corridor E – Blue/Yellow Costs
Audubon's Crested Caracara	\$3,190,000	\$2,695,000	\$2,000,000	\$2,055,000	\$1,840,000
Florida Scrub-Jay	\$3,248,000	\$4,912,000	\$5,416,000	\$6,704,000	\$6,496,000
Gopher Tortoise	\$827,580	\$910,260	\$889,980	\$889,980	\$922,740
Florida Sandhill Crane	\$48,000	\$49,000	\$66,000	\$65,000	\$73,000
Federal Species	\$6,438,000	\$7,607,000	\$7,416,000	\$8,759,000	\$8,336,000
State Species	\$875,580	\$959,260	\$955,980	\$954,980,	\$995,740
<b>Total</b>	<b>\$7,313,580</b>	<b>\$8,566,260</b>	<b>\$8,371,980</b>	<b>\$9,713,980</b>	<b>\$9,331,740</b>

#### 7.1.5 Priority Habitat

The FWC Priority Wetlands Habitat database contains a review of 33 individual wetland-dependent species that are used by the FWC to identify priority wetlands for listed species. The dataset is developed using documented and potential wetland habitats using known occurrence records and vegetative cover derived from aerial and satellite imagery.

Within the project study area, the FWC Priority Wetlands Habitat database contains records ranging from: 0 (background), 1-3 (focal species), and 4-6 (focal species). All of the corridors impact wetlands within each range.

#### 7.1.6 Essential Fish Habitat

No Essential Fish Habitat has been identified within the project study area. An analysis to confirm this determination will be made during the PD&E Study.

#### 7.1.7 Conservation Areas

The FNAI GIS database depicts several park and recreational lands within the study area (see Figure 3-5): Isle of Pine Preserve, Lake Lizzie Conservation Area, and county boat ramps and parks as well as wetland mitigation areas, such as TM Econ and Lake X Ranch. The study area does not contain any Areas of Critical State Concern, state parks, WMAs, Florida Scenic Highways and Byways, or priority or opportunity greenways.

Corridor A – Red will have minor impacts to conservation areas. The corridor traverses the FDEP Office of Greenways and Trails trail corridor connecting the Three Lakes WMA to Old Canoe Creek Road. In addition, Corridor A – Red impacts 0.50 acre of Hickory Tree Neighborhood Park.

Corridor B – Red/Yellow will have minor impacts to conservation areas. The corridor traverses the FDEP Office of Greenways and Trails trail corridor connecting the Three Lakes WMA to Old Canoe Creek Road.

Corridor C – Blue/Cyan/Yellow, Corridor D – Blue/Brown/Yellow, and Corridor E – Blue/Yellow will have minor impacts to conservation areas. These corridors also traverse the FDEP Office of Greenways and Trails trail corridor connecting the Three Lakes WMA to Old Canoe Creek Road. Portions of the corridors, south of Lake Gentry, are within the proposed Big Bend Swamp/Holopaw Ranch Florida Forever potential acquisition. These lands serve as a corridor between Triple N WMA and Three Lakes WMA in Osceola County. The lands have not been purchased and are still in private ownership. Portions of the corridor also impact the Lake X Ranch Mitigation Bank.

The proposed Big Bend Swamp/Holopaw Ranch Florida Forever acquisition could be given consideration for purchase as part of a regional mitigation plan for the project.

#### 7.1.8 Mitigation Banks

The Lake X Ranch Mitigation Bank is located partially within the project study area and comprises much of the upland and wetland habitats surrounding Lake Conlin.

Corridor A – Red will have no impacts to mitigation banks, and Corridor B – Red/Yellow, Corridor C – Blue/Cyan/Yellow, and Corridor D – Blue/Brown/Yellow each impact approximately 92 acres of the Lake X Ranch Mitigation Bank. Corridor E – Blue/Yellow directly impacts approximately 150 acres of the Lake X Ranch Mitigation Bank.

#### 7.1.9 Prescribed Burn Areas

Within the Lake X Ranch Mitigation Bank, it was assumed that the prescribed burn areas impacted by the project are the corridor footprint plus the mitigation bank area west of the corridor.

Corridor A – Red will have no impacts to prescribed burn areas. Corridor B – Red/Yellow, Corridor C – Blue/Cyan/Yellow, and Corridor D – Blue/Brown/Yellow each impact approximately 625 acres of prescribed burn areas. Corridor E – Blue/Yellow impacts approximately 270 acres of prescribed burn areas.

#### 7.1.10 Anticipated Permits

Construction and maintenance activities are regulated by numerous environmental laws and regulations administered by state and federal agencies. These agencies have established environmental programs to conserve, protect, manage, and control the air, land, water, and natural resources of the state or the United States. The following is a list of anticipated permits needed from the state and federal agencies for the proposed project.



#### 7.1.10.1 Federal Dredge and Fill Permit/Standard Permit

The USACE regulates the discharge of dredge and fill material into Waters of the United States, including wetlands, under Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act of 1899. Section 404 requires the issuance of a permit before dredge or fill material may be discharged into Waters of the United States, unless the activity is exempt from this regulation (e.g., certain farming and silviculture activities). The issuance of a Water Quality Certification, under Section 401 of the CWA, is required prior to the issuance of a Section 404 Dredge and Fill Permit. This Water Quality Certification is obtained with the issuance of a state Environmental Resource Permit issued by the FDEP or a Water Management District. A federal dredge and fill permit would be required for impacts to Surface Waters or Wetlands within the project area.

#### 7.1.10.2 Biological Opinion/Incidental Take Permit

The Endangered Species Act (ESA) of 1973, as amended, requires all federal agencies to work to conserve endangered and threatened species and to use their authorities to further the purposes of the ESA. Section 7(a)(2) of the ESA is the mechanism by which federal agencies ensure the action they take, including those they fund or authorize (i.e., federal permit), do not jeopardize the existence of any listed species. When a federal action “may affect, and is likely to adversely affect” a listed endangered or threatened species, the lead federal agency submits a request to the USFWS for formal consultation. Then USFWS prepares a biological opinion (BO) on whether the proposed activity will jeopardize the continued existence of a listed species. This process would occur during Section 404 Dredge and Fill permitting if jurisdictional wetlands to Waters of the United States would be impacted by the proposed project. Otherwise, an incidental take permit (ITP) would be necessary under Section 10(a)(1)(B) of the ESA for impacts to federally-listed species without nexus to a federal action. A Habitat Conservation Plan is required as part of an ITP from the USFWS.

The proposed project will potentially require ESA Section 7 consultation for impacts to the eastern indigo snake, wood stork, Audubon’s crested caracara, Florida scrub-jay, and Everglade snail kite. This consultation will result in a BO from the USFWS. This process will be initiated during the permitting phase by the USACE as they are the lead federal agency.

#### 7.1.10.3 NPDES Permit

As authorized by the CWA, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into Waters of the United States. The USEPA delegated its authority to implement the NPDES program to the FDEP. This permit is required because the proposed project will disturb more than one acre of land, and the stormwater runoff will discharge to waters of the state. A Stormwater Pollution Prevention Plan (SWPPP) is required to be developed as part of the NPDES and implemented during construction. The objectives of the SWPPP are to prevent erosion where construction activities occur, prevent pollutants from mixing with stormwater, and prevent pollutants from being discharged by trapping them on-site, before they can affect the receiving waters. The

applicant must submit a Notice of Intent with FDEP at least two days prior to the commencement of construction.

#### 7.1.10.4 Environmental Resource Permit (ERP)

FDEP and Florida's five water management districts implemented Chapter 62-330, Florida Administrative Code, ERP to govern certain regulated activities, such as works in waters of the state, including wetlands, and construction of stormwater management systems. The proposed project is located within the jurisdiction of the SFWMD. The proposed project is expected to require an ERP for a stormwater management plan and impacts to wetlands and wetland-dependent wildlife.

## 7.2 Human Environment

### 7.2.1 Community and Neighborhood Facilities

This section provides an overview of community and neighborhood facilities and includes general impacts to residential and non-residential properties, proposed developments, community facilities, and community cohesion. The right-of-way needs for each of the corridor alternatives are also presented.

A review of Osceola County GIS data and UCF's Geoplan Center GIS data of existing police stations, religious facilities, day cares, schools, fire stations, cemeteries, government buildings, cultural centers, and hospitals within the project area was performed. Community facilities within the project area are listed in Table 3-15.

Corridor A – Red directly impacts two community and neighborhood facilities. Osceola County Fire Department Station 53, located at 4070 Hickory Tree Road, St. Cloud, is impacted by the proposed interchange with Deer Run Road. The Amazing Grace Baptist Church, located at 5649 East Irlo Bronson Memorial Highway, St. Cloud, is impacted by the proposed interchange with US 192 (SR 500). No other community or neighborhood facilities are impacted by any of the corridor alignment alternatives.

The total impacts to residential and non-residential parcels were evaluated for each corridor. The residential properties were identified from property tax records and consisted of the number of parcels designated as single-family homes or mobile homes. Planned residential parcels were based on development plans under review by Osceola County. Other parcels were the remaining parcels impacted by the corridors. Determination of the acreage of impacts to proposed developments was also estimated. Table 7-10 summarizes these impacts.

Table 7-10  
Impacts to Residential and Non-Residential Parcels and Planned Developments

Category	Corridor A – Red	Corridor B – Red/Yellow	Corridor C – Blue/Cyan/Yellow	Corridor D – Blue/Brown/Yellow	Corridor E – Blue/Yellow
R/W Area (Acres)	1,349	1,447	1,581	1,707	1,758



Category	Corridor A – Red	Corridor B – Red/Yellow	Corridor C – Blue/Cyan/Yellow	Corridor D – Blue/Brown/Yellow	Corridor E – Blue/Yellow
Total Potential Residential Impacts (Total Parcels)	365	74	22	28	3
Existing	181	55	3	9	3
Planned	186	19	19	19	0
Total Potential Non-Residential Impacts (Total Parcels)	232	152	141	118	122
Existing	232	151	140	117	122
Planned	0	1	1	1	0
Planned Development (Acres)	622	761	806	890	887

Impacts to community cohesion were evaluated. Community cohesion is a term used to assess the sense of belonging residents felt toward their community or neighborhood. This may include a resident's commitment to the community, attachment to neighbors, community institutions, or particular subgroups.

Corridor A – Red and Corridor B – Red/Yellow each have a medium impact on community cohesion. The residential area north of Lake Gentry will be impacted by these two corridors. However, the alignments were configured to avoid the residential area to the greatest extent possible. Corridor A – Red will also have an impact on the residential communities near Deer Run Road and west of Alligator Lake. The residential area near US 192 (SR 500) and Nova Road (CR 532) will also be impacted. Corridor B – Red/Yellow will impact the community north of Lake Gentry and along Old Melbourne Highway (CR 500A). Corridor C – Blue/Cyan/Yellow and Corridor D – Blue/Brown/Yellow will have a low impact to the community along Old Melbourne Highway (CR 500A). Corridor E – Blue /Yellow will have a low impact to any communities. It is noted that Corridor D – Blue/Brown/Yellow and Corridor E – Blue/Yellow each traverse through an area known as Suburban Estates. This area is comprised of small residential lots that are undevelopable. Owners of these lots use the entire area for personal recreational activities. There are no permitted residential homes within this area.

## 7.2.2 Cultural Resources

### 7.2.2.1 Archaeological

The background research revealed no recorded archaeological sites impacted by the corridor alternatives. There is a variable probability for aboriginal archaeological sites along the corridor alternatives. Areas of highest archaeological potential would be within 328 feet of a water source on Adamsville, Immokalee, St. Lucie, or Tavares sand.

#### 7.2.2.2 Historical

A review of the historic aerial photos revealed a relatively low potential for historic resources along any of the proposed corridor alternatives. In 1944, no major development had occurred within the project area, although US 192 (SR 500) and Old Melbourne Highway (CR 500A) had been constructed by that time as well as most of the canals found throughout the project limits. Although not many structures had been constructed in the area by 1944, much of the lands had been cleared for citrus groves. Between 1951 and 1959, the area still retained its rural nature, but it started to see some housing development and an increased definition of agricultural land devoted to citrus groves (USDA, 1944a, 1944b, 1951, 1954, 1959a, 1959b).

Background research indicated that two historic linear resources and one historic resource (45 years of age or older) were recorded within the project limits. Linear resources are the Brick Road/Old Melbourne Highway (8OS01804) and the Yates and Paty Canal (8OS02787). The Brick Road/Old Melbourne Highway (8OS01804) intersects Corridor B – Red/Yellow, Corridor C – Blue/Cyan/Yellow, Corridor D – Blue/Brown/Yellow, and Corridor E – Blue/Yellow; and Yates and Paty Canal (8OS02787) intersects Corridor A – Red. Various portions of the Brick Road/Old Melbourne Highway (8OS01804) have been recorded and the SHPO determined it was ineligible for listing in the NRHP in 2014; however, the segments within the preliminary project APE have not been evaluated. The Yates and Paty Canal (8OS02787) was recorded in 2014, at which time it was determined ineligible for listing in the NRHP by the SHPO. In addition, Corridor A – Red passes through the property of previously recorded historic resource 2875 Biron Road (8OS02786). This resource is a 1955 Frame Vernacular style residence and was determined ineligible by the SHPO for listing in the NRHP. The western edge of Corridor A - Red is approximately 250 feet away from the rear of the resource. A review of the Osceola County Property Appraiser data and historic aerial photographs suggested the potential for historic resources within the project area (Scarborough, 2017; USDA, 1944, 1959).

A desktop study was conducted for the area. The findings during the desktop analysis discovered the potential for a direct impact on approximately 27 historic resources (19 historic structures and 8 historic linear resources) and 12 properties. None of these resources are listed, determined eligible, or appear potentially eligible for listing in the NRHP; however, a field survey will be necessary for proper identification and evaluation. Direct Impact and Indirect Impact are based on relation to the preliminary APE which, as defined in 36 CFR Part § 800.16(d), is the “geographic area or areas within which an undertaking may directly or indirectly [visual/audible/atmospheric] cause alterations in the character or use of historic properties, if any such properties exist.” The suggested build date is taken from the Osceola County Property Appraiser and is not always accurate; therefore, it is important to conduct a field survey for proper identification and evaluation. Below is a description of the affect to historic resources impacted by the corridor alternatives.

Corridor A – Red intersects seven historic properties and two linear resources. This corridor also has the potential to directly affect 16 historic structures. The cultural resource potential impacts are listed in Table 7-11.



Table 7-11  
Corridor A – Red Cultural Resource Potential Impacts

Previously Recorded Cultural Resource Designations	Direct Impact	Indirect Impact	Distance from Corridor	Address/Site Name	Build Date	Use
N/A	Property			4855 Canoe Creek Rd, Saint Cloud	1955	Single Family
N/A	Property	Structure	350 feet	4775 Canoe Creek Rd	1969	Single Family
N/A	Structure			Story Road	pre-1970	Utility
N/A	Property	Structure	250 feet	4000 Story Rd	1972	Mobile Home
N/A	Structure			4055 Story Rd	1972	Single Family
N/A	Structure			3990 Story Rd	1971	Mobile Home
N/A	Property			4275 Hickory Tree Rd	1970	Single Family
N/A	Structure			4055 Hickory Tree Rd	1972	Single Family
N/A	Structure			4025 Hickory Tree Rd	1958	Single Family
N/A	Structure			4001 Hickory Tree Rd	1955	Single Family
N/A	Property			3675 Hickory Tree Rd	1972	Single Family
N/A	Structure			3312 Westshore Dr	1970	Single Family
N/A	Property			5075 Rockaby Rd	1959	Single Family
N/A	Structure			2991 Biron Rd	1940	Single Family
PR OS02787	Canal			Canal		Canal
PR OS02786	Property			2875 Biron Rd	1955	Single Family
N/A	Road			US 192 (SR 500)	Pre-1947	Linear Resource
N/A	Structure			5675 E Irlo Bronson Mem Hwy	1960	Single Family
N/A	Structure			5665 E Irlo Bronson Mem Hwy	1945	Single Family
N/A	Structure			5653 E Irlo Bronson Mem Hwy	1969	Store

Previously Recorded Cultural Resource Designations	Direct Impact	Indirect Impact	Distance from Corridor	Address/Site Name	Build Date	Use
N/A	Structure			5653 E Irlo Bronson Mem Hwy	1945	Single Family
N/A	Structure			5653 E Irlo Bronson Mem Hwy	1971	Mobile Home
N/A	Structure			5648 Lake Lizzie Dr	1965	Mobile Home
N/A	N/A	Structure	200 feet	5755 Lake Lizzie Dr	1971	Single Family

Corridor B – Red/Yellow impacts five historic properties and five linear resources. This corridor also has the potential to directly affect four historic structures. The cultural resource potential impacts are listed in Table 7-12.

Table 7-12  
Corridor B – Red/Yellow Cultural Resource Potential Impacts

Previously Recorded Cultural Resource Designations	Direct Impact	Indirect Impact	Distance from Corridor	Address/Site Name	Build Date	Use
N/A	Property			4855 Canoe Creek Rd, Saint Cloud	1955	Single Family
N/A	Property	Structure	350 feet	4775 Canoe Creek Rd	1969	Single Family
N/A	Canal			Alligator-Gentry Canal (C-33)		Canal
N/A	Structure			4801 Hickory Tree Rd	1963	Single Family
N/A	Property			4925 Hickory Tree Rd	1969	Single Family
N/A	Property	Structure	200 feet	4975 Hickory Tree Rd	1949	Single Family
N/A	Canal			Canal 33A		Canal
N/A	Property			5380 Hickory Tree Rd, Saint Cloud	1964	Single Family
N/A	Structure			Nursery Rd	1971	Barn
N/A	Structure			3460 Nursery Rd	1949	Single Family
N/A	Road			US 192 (SR 500)	Pre-1947	Linear Resource



Previously Recorded Cultural Resource Designations	Direct Impact	Indirect Impact	Distance from Corridor	Address/Site Name	Build Date	Use
N/A	Structure			Old Melbourne Hwy (CR 500A)	1968	Utility
8OS01804	Road			Old Melbourne Hwy (CR 500A)	c. 1918	Linear Resource
N/A	Canal			Canal 32C		Canal

Corridor C – Blue/Cyan/Yellow impacts two historic properties and six linear resources. This corridor has the potential to directly affect three historic structures. The cultural resource potential impacts are listed in Table 7-13.

Table 7-13  
Corridor C – Blue/Cyan/Yellow Cultural Resource Potential Impacts

Previously Recorded Cultural Resource Designations	Direct Impact	Indirect Impact	Distance from Corridor	Address/Site Name	Build Date	Use
N/A	Canal			Canoe Creek Canal (C-34)	c. 1944	Canal
N/A	Canal			Canal		Canal
N/A	Property			4500 Lake Gentry Rd	1964	Single Family
N/A	Canal			Canal 33A		Canal
N/A	Property			5380 Hickory Tree Rd	1964	Single Family
N/A	Structure			Nursery Rd	1971	Barn
N/A	Structure			3460 Nursery Rd	1949	Single Family
N/A	Road			US 192 (SR 500)	Pre-1947	Linear Resource
N/A	Structure			Old Melbourne Hwy (CR 500A)	1968	Utility
8OS01804	Road			Old Melbourne Hwy (CR 500A)	c. 1918	Linear Resource
N/A	Canal			Canal 32C		Canal

Corridor D – Blue/Brown/Yellow impacts five linear resources. This corridor has the potential to directly affect two historic structures. The cultural resource potential impacts are listed in Table 7-14.

**Table 7-14**  
**Corridor D – Blue/Brown/Yellow Cultural Resource Potential Impacts**

Previously Recorded Cultural Resource Designations	Direct Impact	Indirect Impact	Distance from Corridor	Address/Site Name	Build Date	Use
N/A	Canal			Canoe Creek Canal (C-34)	c. 1944	Canal
N/A	Canal			Canal		Canal
N/A	N/A	Structure	450 feet	6430 Hickory Tree Rd	1971	Single Family
N/A	Structure		30 feet	6257 Hickory Tree Rd	1930	Single Family
N/A	Road			US 192 (SR 500)	Pre-1947	Linear Resource
N/A	Structure			Old Melbourne Hwy (CR 500A)	1968	Utility
N/A	Road			Old Melbourne Hwy (CR 500A) (8OS01804)	c. 1918	Linear Resource
N/A	Canal			Canal 32C		Canal

Corridor E – Blue/Yellow impacts one historic property and five linear resources. The cultural resource potential impacts are listed in Table 7-15.

**Table 7-15**  
**Corridor E – Blue/Yellow Cultural Resource Potential Impacts**

Previously Recorded Cultural Resource Designations	Direct Impact	Indirect Impact	Distance from Corridor	Address/Site Name	Build Date	Use
N/A	Canal			Canoe Creek Canal (C-34)	c. 1947	Canal
N/A	Canal			Canal		Canal
N/A	Road			US 192 (SR 500)	Pre-1947	Linear Resource
N/A	Road			Old Melbourne Hwy (CR 500A) (8OS01804)	c. 1918	Linear Resource
N/A	Property			7975 Old Melbourne Hwy	1967	Warehouse
N/A				7975 Old Melbourne Hwy	1969	Warehouse
N/A				7975 Old Melbourne Hwy	1935	Recreational
N/A				7975 Old Melbourne Hwy	1960	unknown
N/A	Canal			Canal 32C		Canal



### 7.2.3 Emergency Services

Corridor A – Red directly impacts the Osceola County Fire Department Station 53, located at 4070 Hickory Tree Road, St. Cloud. No other emergency services are impacted by the corridor alignments. It is anticipated that the implementation of the Northeast Connector Expressway will enhance emergency response time.

### 7.3 Noise

A noise analysis will be conducted during the PD&E Study phase.

### 7.4 Air Quality

An air quality analysis will be conducted during the PD&E Study phase.

### 7.5 Contamination

A discussion of the identified potential contamination sites within the study area is contained in Section 3.6 and the locations of the potential contamination sites are shown on Figure 3-11. Figure 7-2 shows the locations of the identified sites relative to the alternative corridor alignments.

The Corridor A – Red interchange with US 192 (SR 500) is located approximately 850 feet to the west of the Site No. 5, Jiffy Food Store #2483, 5800 Alligator Lake Shore W., St. Cloud. The Jiffy Food Store is rated as High for contamination potential. Corridor A – Red is also located 3,500 feet east of Site No. 6, D&N Trucking, SR 192 E & Nova Rd (CR 532), St. Cloud. D&N Trucking is rated as High for contamination potential.

Corridor E – Blue/Yellow is located approximately 1,400 feet west of Site No. 4, Mercury Racing, 7555 Old Melbourne Highway, St. Cloud. The Mercury Racing facility is rated as High for contamination potential.

No other potential contamination sites are located in close proximity to the corridor alignment alternatives.







## 7.6 Utilities

Existing and planned utilities that may be affected by the proposed build alternatives are evaluated in this section. A general description and location of the major utilities currently within or planned within the study area can be found in the project's Existing Conditions Technical Memorandum, dated January 2018. Below is a description of the major utilities that may be adversely affected by the corridors evaluated for the project. Figure 7-3 shows the locations of the utilities relative to the alternative corridor alignments.

### **Corridor A – Red**

#### Existing Utility Impacts:

- Alignment crosses overhead transmission lines on the east side of Hickory Tree Road (CR 534) at Deer Run Road
- Alignment parallels overhead transmission lines on the east side of Hickory Tree Road (CR 534) for a short distance north of Deer Run Road
- Alignment crosses 20" and 30" FGT gas mains on south side of US 192 (SR 500)
- Alignment crosses overhead transmission lines on Eden Drive
- Alignment crosses overhead transmission lines just east of the eastern terminus of Jones Road

#### Planned Utility Impacts:

- Alignment crosses future 24" water main at the southern terminus of Packard Avenue
- Alignment crosses future 24" and 16" water mains at Deer Run Road and Hickory Tree Road (CR 534)
- Alignment crosses future water booster station at Deer Run Road and Hickory Tree Road (CR 534)
- Alignment crosses future 24" water main on Alligator Lake Road
- Alignment crosses future 24" water main between Live Oak Lake and Sardine Lake
- Alignment crosses future 16" reclaimed water main on Hickory Tree Road (CR 534) at Deer Run Road
- Alignment crosses future 16" reclaimed water main on US 192 (SR 500)
- Alignment crosses future 24" reclaimed water main between Live Oak Lake and Sardine Lake

### **Corridor B – Red/Yellow**

#### Existing Utility Impacts:

- Alignment crosses overhead transmission lines on Hickory Tree Road (CR 534) at Chaplain Road
- Alignment crosses overhead transmission lines on Hickory Tree Road (CR 534) at Canal Designated 11
- Alignment crosses overhead transmission lines on Hickory Tree Road (CR 534) at Nursery Road
- Alignment crosses overhead transmission lines on US 192 (SR 500)

- Alignment crosses 20" and 30" FGT gas mains on south side of US 192 (SR 500)

Planned Utility Impacts:

- Alignment crosses future 24" water main at the southern terminus of Packard Avenue
- Alignment crosses future 16" water main on Hickory Tree Road (CR 534) at Lake View Acres
- Alignment crosses future 16" water main on Hickory Tree Road (CR 534) at Nursery Road
- Alignment crosses future 16" reclaimed water main east of Hickory Tree Road (CR 534) at Canal Designated 11 on Boutin Lane extension
- Alignment crosses future 16" reclaimed water main on Hickory Tree Road (CR 534) at Nursery Road

**Corridor C – Blue/Cyan/Yellow**

Existing Utility Impacts:

- Alignment crosses overhead transmission lines on Hickory Tree Road (CR 534) at Nursery Road
- Alignment crosses overhead transmission lines on US 192 (SR 500)
- Alignment crosses 20" and 30" FGT gas mains on south side of US 192 (SR 500)

Planned Utility Impacts:

- No impacts with any known planned utilities

**Corridor D – Blue/Brown/Yellow**

Existing Impacts:

- Alignment crosses overhead transmission lines on Hickory Tree Road (CR 534) at Robert Lee Road
- Alignment crosses overhead transmission lines on US 192 (SR 500)
- Alignment crosses 20" and 30" FGT gas mains on south side of US 192 (SR 500)

Planned Utility Impacts:

- No impacts with any known planned utilities

**Corridor E – Blue/Yellow**

Existing Utility Impacts:

- Alignment crosses overhead transmission lines on US 192 (SR 500)
- Alignment crosses 20" and 30" FGT gas mains on south side of US 192 (SR 500)

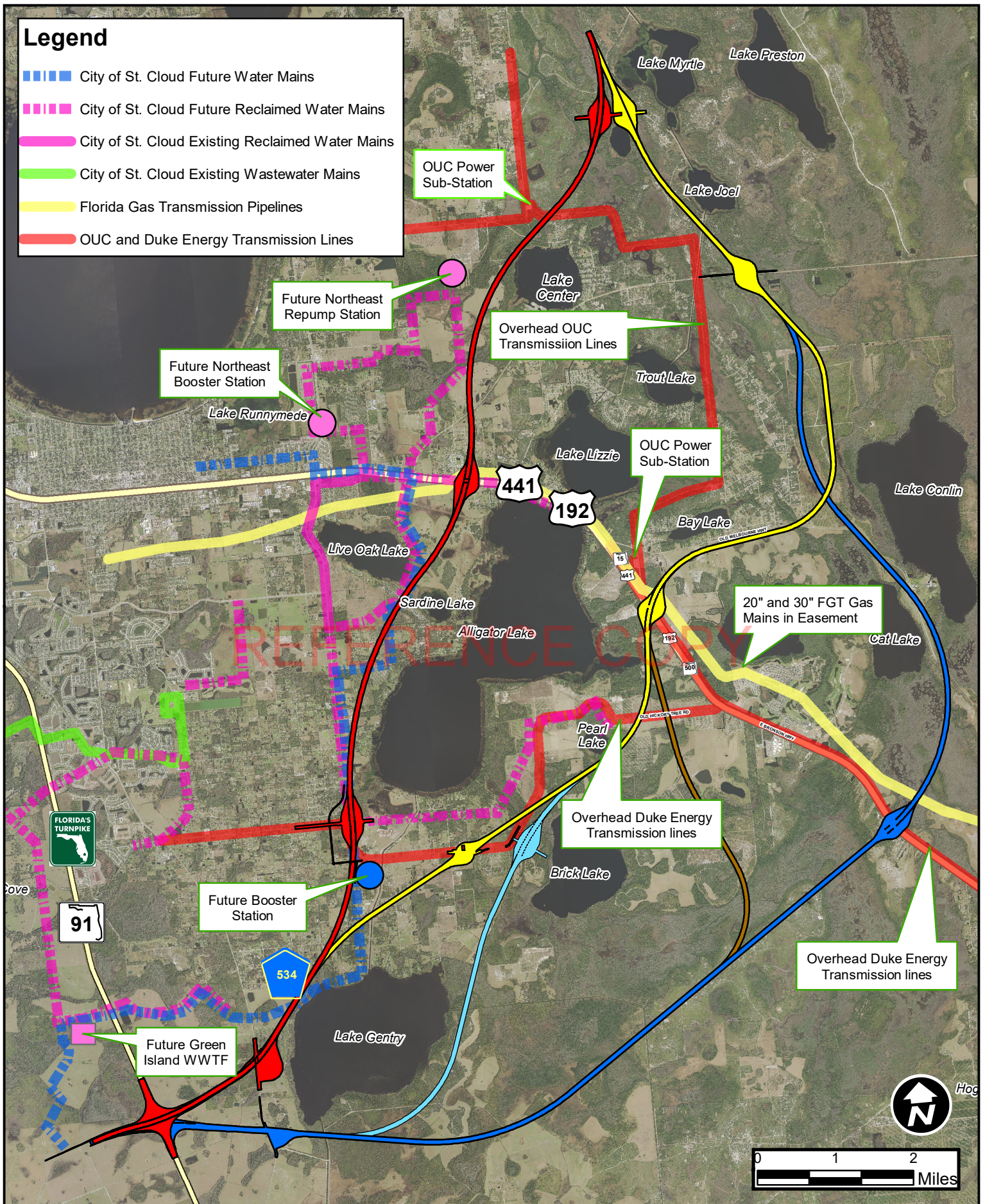
Planned Utility Impacts:

- No impacts with any known planned utilities



## Legend

- ■ ■ ■ City of St. Cloud Future Water Mains
- ■ ■ ■ City of St. Cloud Future Reclaimed Water Mains
- City of St. Cloud Existing Reclaimed Water Mains
- City of St. Cloud Existing Wastewater Mains
- Florida Gas Transmission Pipelines
- OUC and Duke Energy Transmission Lines





## 8. Stakeholder Involvement

### 8.1 Introduction

The Central Florida Expressway Authority (CFX) in April of 2017 began conducting four Concept, Feasibility and Mobility Studies to analyze the unbuilt portions of the Osceola County Expressway Authority (OCX) Master Plan. The goal of these studies was to determine which, if any, of the study corridors met CFX requirements for viability and funding.

The study corridors are located within Osceola County, with small portions in Orange and Polk Counties. In 2016, as part of an interlocal agreement, portions of the OCX 2040 Master Plan were included in the CFX 2040 Master Plan.

The overall purposes of the study corridors are to: improve roadway connections from I-4/SR 429 to Florida's Turnpike, to US 192, and to SR 417; provide additional traffic capacity within the study area; enhance mobility of the area's growing population and economy; reduce congestion and delays on local roads by providing a new limited-access transportation option; provide for the incorporation of transit options; and promote regional connectivity.

Public involvement and interagency coordination was an integral part of the assessment process, and multiple opportunities for participation were provided.

A corridor-wide Public Involvement Plan (PIP) was established to initiate and maintain early, meaningful, continuous, and high-level public and stakeholder involvement throughout the study period. The public involvement techniques utilized provided information to, and helped obtain vital input from citizen, residential and business groups; elected and appointed officials; other government entities; environmental advocates; civic and community groups; as well as others interested in the corridor-wide implications of the study segments.

The corridor-wide PIP was implemented in conjunction with the individual PIP's developed for the four separate study corridors to more specifically address their stakeholders. The plans identified an array of stakeholders with corridor-wide or multi-segment interests and helped ensure that the studies reflected the values and needs of the communities they were designed to benefit. The corridor-wide PIP ensured that consistent communication was provided to the public across all segments throughout the corridor.

Public engagement provided crucial input and helped to resolve issues and minimize negative impacts so that CFX could decide how best to develop projects along this corridor that meet the needs of the surrounding communities. The comprehensive public engagement program included a corridor-wide Environmental Advisory Group (EAG), a Project Advisory Group (PAG) for each corridor, two rounds of three public meetings held throughout the 60-mile corridor, meetings with state and local elected and appointed officials, as well as meetings with key stakeholders and community groups.

Study kick-off activities included the implementation of a study webpage on the [www.cfxway.com](http://www.cfxway.com) website. Kick-off letters were sent to more than 170 state and local elected and appointed officials



in May 2017 announcing the 12-month studies. A Facebook page was established and updated periodically to help inform the public of study activities.

## **8.2 Stakeholder Coordination and Meetings**

### **8.2.1 Environmental Advisory Group**

One Environmental Advisory Group (EAG) was established to review all four study corridors. The purpose of the EAG was to help provide input on environmental impacts in the evaluation of the feasibility of the project corridors. The main purpose of the EAG was to inform the project team of local needs, issues, and concerns within the project area.

EAG meeting invitations were sent to representatives from environmental agencies and organizations, other government agencies, large landholders, community groups, and other key stakeholders.

EAG meetings were held on July 11, 2017 and January 31, 2018. The meetings were attended by a total of more than 50 members.

July 11, 2017, EAG Meeting: The Kick-off EAG meeting was held Tuesday, July 11, 2017 from 9 a.m. to 11 a.m. at the Osceola Heritage Park, Exhibition Hall, 1875 Silver Spur Lane, Kissimmee, FL 34744. Invitation letters were emailed to 94 members of the EAG on June 22, 2017. An ad was placed in the *Florida Administrative Register* on June 26, 2017, Vol. 43/123. Reminder invites were emailed to EAG members on July 10, 2017. There were 25 attendees and 21 staff members.

Introductions were followed by discussion of the studies' background, purpose and goals, schedule, and the roles of the EAG. Each of the four study corridor consultants gave presentations on the prior and current studies and alternatives.

Discussion topics included traffic movements to the Turnpike, various planned communities and developments of regional impact (DRI's), mitigation area impacts, and current Poinciana congestion concerns.

There was extensive discussion about how several alternatives affected important lands and conservation areas, most notably the Split Oak Forest. Potential impacts to planned developments, as well as impacts to various species and the ability to effectively manage conservation areas were widely discussed.

It was noted that input from the EAG would be considered in the further evaluation and development of study alternatives. A full EAG meeting summary can be found in Appendix G.

January 31, 2018, EAG Meeting: The second EAG meeting met on January 31, 2018 from 9 a.m. to 11 a.m. at the Osceola Heritage Park Exhibition Hall, 1875 Silver Spur Lane, Kissimmee, FL 34744.

Notifications were emailed to 107 members of the Environmental Advisory Group (EAG) on January 13, 2018. There were 30 attendees and 24 staff members.

Introductions were followed by discussion of the studies' background, purpose and goals, schedule, and the roles of the EAG. Each of the four study corridor consultants gave presentations including details on the latest refined alternatives. The study teams also presented evaluation matrices comparing the physical, cultural, and natural environment, in addition to the social impacts of each respective alternative.

It was noted during the meeting that the CFX Board meeting on March 8 would review the study findings and determine which, if any, moved forward to a Project Development and Environment (PD&E) Study. It was emphasized that the Board would not be selecting a particular alternative for any corridor; that process would be part of any subsequent PD&E Study.

Discussion topics included identifying and protecting habitat corridors; methods for establishing right-of-way and other costs; traffic estimates; established conservation easements; and mitigation for wetlands, listed species, and state land. There was extensive discussion about potential impacts to the Split Oak Forest from the latest refined alternatives. There was also discussion of the Split Oak Forest working group discussions that are underway.

A number of attendees expressed their desire for a regional mitigation concept. Meeting attendees also provided specific input on various alternatives.

It was noted that exhibits and information provided to the EAG would be displayed at the upcoming public meetings on February 13, 15 and 21. A full EAG meeting summary is available in Appendix G.

#### 8.2.2 Project Advisory Groups

A Project Advisory Group (PAG) was created for each of the four study corridors. The PAG served as a special advisory resource to CFX and the consultant teams, providing input in the evaluation of the feasibility of the project corridors. The main purpose of the PAG is to inform the project team of local needs, issues, and concerns within the project study limits with regards to physical, social and cultural impacts.

The PAG included staff from the Florida Department of Transportation (FDOT), Florida's Turnpike Enterprise, LYNX, Orange County, Osceola County, Polk County, permitting agencies, environmental organizations, large landholders, special interest groups and other entities relevant to the individual study corridors.

The **Northeast Connector Expressway PAG** meeting took place on July 20, 2017 from 2 p.m. to 4 p.m. at the Narcoossee Elementary School, 2690 North Narcoossee Rd, St. Cloud, FL 34772.



Invitation letters were emailed to 40 members of the PAG on June 23, 2017. Reminder invites were emailed to PAG members on July 18, 2017. There were 15 attendees and five staff members.

The presentation included the study overview and background, schedule, public involvement opportunities and PAG roles. Information was provided on previous studies and findings, corridor characteristics and current study alternatives. Discussion topics included the Alligator Lake Alliance's opposition to the yellow and green alternatives; questions about the mix of vehicles expected to use the expressway with specific concerns about commercial truck traffic; a request for a future interchange farther south of Sunbridge; concerns about potential impacts to Florida Gas Transmission lines from various alternatives; a request to show Florida National Scenic Trail on exhibits; comments that Titan Properties favored the blue alternative; Suburban Land Reserve's opposition to the yellow alignment; questions about how tolls are calculated, and concerns about future impacts of the yellow alternative to Harmony.

Input from the PAG meetings was used to further evaluate, develop and refine alternatives that were presented at Kick-off Public Meetings in September and October of 2017. Feedback from the fall public meetings were used to further refine and develop corridor alternatives that were presented at the second PAG meetings in February of 2018.

The second **Northeast Connector Expressway PAG** meeting was held on February 6, 2018 from 2 p.m. to 4 p.m. at the Narcoossee Community Center, 5354 Rambling Road, St. Cloud, FL 34771. Invitation letters were emailed to 52 members of the PAG on January 16, 2018. There were 12 attendees and seven staff members.

The presentation included the study overview and background, schedule, latest public involvement opportunities, as well as the study purpose and goals. The presentation provided an update of study corridor alternatives. An evaluation matrix was provided comparing the physical, cultural, natural environment, and social impacts of their respective alternatives.

Discussion topics included questions about the schedule and next steps in the process, comments that Sun Terra / Harmony opposes the yellow alternative and supports the blue alternative; questions about the tolling study; the possibility of phasing project development; and potential impacts to Narcoossee Road traffic.

Meeting summaries and presentations from the PAG meetings were emailed to the group members. The presentations were also posted on the study's public involvement webpages.

### 8.2.3 Local Government Officials

The Corridor-wide Public Involvement Program, implemented in conjunction with the individual study corridor PIP, involved identifying and communicating with state, regional, and local agencies having a potential interest in this project due to jurisdictional review or expressed interest.

A kick-off letter to inform local officials about the project was sent on May 23, 2017. An Officials' Briefing was held on September 19, 2017 from 4 p.m. to 5 p.m. at the Association of Poinciana Villages Community Center, 445 Marigold Avenue, Poinciana, FL 34759.

Elected and appointed officials were provided notice of all public meetings, with several of them attending the various meetings. Agency officials also participated in the Environmental Advisory Group and the individual Project Advisory Group meetings.

Formal presentations were made to local official boards to gain input and to provide study updates as follows:

- Polk County Board of County Commissioners August 8, 2017
- Osceola County Expressway Authority October 10, 2017
- Central Florida Expressway Authority October 12, 2017
- Central Florida Expressway Authority December 14, 2017
- Osceola County Expressway Authority February 13, 2018
- Osceola County Board of County Commissioners February 19, 2018
- Central Florida Expressway Authority March 8, 2018

It should be noted that two members of the Orange County Board of County Commissioners, including the County Mayor, sit on the CFX Board.

At the March 8, 2018 meeting, the CFX Board reviewed the findings of the four concept studies and heard comments from more than 40 members of the public. The CFX Board approved advancing two of the four studies, the Poinciana Parkway Extension/I-4 Connector and the Osceola Parkway Extension, to the Project Development and Environment (PD&E) Study phase for further analysis. The Board decided to periodically revisit the other two studies, the Southport Connector Expressway and the Northeast Connector Expressway, as warranted by future changes in the community.

Additionally, the individual study team met, and otherwise coordinated with, agency officials and staff during the concept study process as follows:

**April 20, 2017, Osceola County:** A coordination meeting was held between Osceola County and the Central Florida Expressway Authority. The purpose of the meeting was to share information about the feasibility study and to receive input from the County regarding the study.

**August 31, 2017, Osceola County:** A second coordination meeting was held between Osceola County and CFX. The purpose of the meeting was to introduce the proposed study corridors and to receive input from the County.

#### 8.2.4 Other Stakeholder Meetings

Additional stakeholder meetings were convened with large landholders, community associations, agricultural interests, environmental advocates, developers, business and civic groups and other



stakeholders. Corridor-wide and individual study team outreach resulted in nearly 60 key stakeholder meetings being conducted throughout the concept studies.

**March 16, 2018, Four Corners Area Council and Osceola County Chamber of Commerce:** CFX and public involvement staff provided an update on the study corridors to about 40 attendees at the Island Grove Wine Company at Formosa Gardens, 3011 Formosa Gardens Blvd., Kissimmee, FL 34747. Attendees were particularly interested in the Poinciana Parkway Extension / I-4 Connector.

#### **NORTHEAST CONNECTOR EXPRESSWAY**

**May 8, 2017, Harmony:** A coordination meeting was held between representatives from Harmony and the Central Florida Expressway. The study process, project schedule and public involvement program were discussed. Harmony representatives discussed that a lot of time and money had been put into narrowing the OCX Master Plan corridor and they would like to see the study efforts stay within the adopted corridor.

**May 10, 2017, Tavistock/Sunbridge:** A coordination meeting was held between representatives from Tavistock/Sunbridge and the Central Florida Expressway Authority. They discussed the development process for Sunbridge and the Sunbridge Parkway Extension from State Road 528 south to Cyrils Drive. The roadway construction is expected to be completed by mid-2019.

**May 22, 2017, Deseret Ranches of Florida:** A coordination meeting was held between representatives from Deseret Ranches of Florida and the Central Florida Expressway Authority. Don Whyte of Deseret Ranches said that mitigation/conservation lands and the Lockheed Martin Corporation property in Orange County would be problematic to an expressway extension. He noted that the recommendations that came out of the East Central Florida Corridor Task Force should be considered and that any deviation should be explained.

**May 23, 2017, Kirchman Foundation:** A coordination meeting was held between representatives from the Kirchman Foundation and the Central Florida Expressway Authority. The history of the study, the preliminary corridor alignments and the project schedule were discussed. Representatives from the Kirchman Foundation requested the acreage of the impact that the alignments through the Lake X property may have. He said that the true impact to the property would be higher than the cost of the land that the roadway footprint would impact.

**June 20, 2017, Dymmek Family:** A coordination meeting was held between representatives from the Dymmek Family and the Central Florida Expressway Authority. The history of the study, the preliminary corridor alignments and the project schedule were discussed.

**June 22, 2017, Titan Properties:** A coordination meeting was held between Stan Pietkiewicz of Titan Properties and Alex Hull from Inwood Consulting Engineers. Stan noted that several of the corridor alignments traversed through his property and that was not his preference.

**June 29, 2017, Tavistock/Sunbridge/Farmland Reserve and Osceola County:** A coordination meeting was held between representatives from Tavistock/Sunbridge/Farmland Reserve, Osceola County and the Central Florida Expressway Authority. The Tavistock/Farmland Reserve

representatives indicated that it is important to plan for a future system-to-system connection to a future eastern expressway extension along Nova Road, as well as provide a connection to Nova Road from the Northeast Connector Expressway.

**August 3, 2017, Dymmek Family:** A coordination meeting was held between representatives from the Dymmek Family and representatives from the Central Florida Expressway Authority. The group reviewed the current corridor alignments. The Dymmek Family would like to continue to be involved throughout the entire project.

#### 8.2.5 Public Involvement and Meetings

The Corridor-wide Public Involvement Plan (PIP), implemented in conjunction with the section specific PIP's, included conducting large-scale public meetings at select milestones to present the latest study information and to gather vital feedback. CFX provided information on all four study corridors at each meeting for the community's convenience, and with the understanding that many stakeholders were interested in more than one section.

Each of the two rounds of meetings were held in three locations spaced throughout the 60-mile corridor. The meetings were conducted as open houses, presenting identical exhibits, handouts and audiovisual presentations. Members of the public were able to have one-on-one discussions with study team staff, and to get their questions addressed. All meetings were held in readily accessible and well-known locations throughout the community.

More than 1,300 people attended the six public workshops, providing more than 630 written comment forms. Additionally, hundreds of other emails and calls were received during the study process.

The public meetings were conducted as follows:

**September 19, 2017, Kick-off Public Meeting #1:** A Kick-off Public Meeting for the Central Florida Expressway Authority's (CFX) Concept, Feasibility and Mobility Studies was conducted on Tuesday, September 19, 2017, from 5:30 p.m. to 7:30 p.m., at the Association of Poinciana Villages Community Center, 445 Marigold Ave., Poinciana, FL 34759. The meeting was originally scheduled for Tuesday, September 14, 2017; it was subsequently rescheduled due to Hurricane Irma. This meeting was the first of three Kick-off Public meetings scheduled to take place throughout the 60-mile corridor.

Public meeting invitation letters were sent on Thursday, August 23, 2017 by email to 61 elected officials and their aides, 50 appointed officials, 30 regional agency contacts, and 33 federal and state agency contacts. An additional 12,295 meeting invitation letters were mailed to property owners within the four corridors.

The Kick-off Public Meeting was advertised in advance with display ads in the *Lakeland Ledger* on Friday, September 1, 2017; in the *Osceola News Gazette* on Thursday, September 7, 2017 and Saturday, September 9, 2017; in *El Sentinel* on Saturday, September 9, 2017; and the *Orlando Sentinel* on Sunday, September 10, 2017. An ad was printed in the *Florida Administrative Register*



(FAR) on Thursday, September 7, 2017, and a press release was distributed to major media outlets on Friday, September 1, 2017.

The original media release and updates were posted on the Orange and Osceola Counties municipal websites. Informational fliers were left at the Poinciana Branch Library, Hart Memorial Central Library, West Osceola Branch Library, and Buena Ventura Lakes Branch Library.

Due to Hurricane Irma, the Kick-off Public Meeting date was rescheduled to September 19, 2017. New notifications were posted in the *Lakeland Ledger* on Thursday, September 14, 2017; in the *Osceola News Gazette* on Saturday, September 16, 2017; and in the *Orlando Sentinel* on Sunday, September 17, 2017. A press release with rescheduled meeting information was distributed to the media outlets and officials on Tuesday, September 12, 2017; and Tuesday, September 19, 2017. Notification emails also were sent to those in the study database.

Fifty-four (54) attendees signed in, including Tawny Olore, Osceola County Department of Transportation and Transit; Joshua Devries, Osceola County Department of Transportation and Transit; Leigh Ann Wachter, City of St. Cloud; Christopher Mills, City of St. Cloud; Renzo Nastasi, Orange County Transportation Planning and Beth Jackson, Orange County Department of Environmental Protection. Seven comment forms were received at the meeting and five comments were received by email after the meeting.

The presentation, display materials, and handouts were posted on the Concept Studies webpage on Friday, September 29, 2017. Public meeting photos and links to the meeting documents were posted on Facebook on Sunday, October 1, 2017 and Monday, October 9, 2017.

**September 26, 2017, Kick-off Public Meeting #2:** A Kick-off Public Meeting for the Central Florida Expressway Authority (CFX) Concept, Feasibility and Mobility Studies was conducted on Tuesday, September 26, 2017, from 5:30 p.m. to 7:30 p.m., at The First Baptist Church of St. Cloud. The meeting was originally scheduled on Tuesday, September 19, 2017; it was subsequently rescheduled due to Hurricane Irma. This meeting was the second of three Kick-off Public meetings scheduled to take place throughout the 60-mile corridor.

Public meeting invitation letters were sent on Thursday, August 23, 2017 by email to 61 elected officials and their aides, 50 appointed officials, 30 regional agency contacts, and 33 federal and state agency contacts. An additional 12,295 meeting invitation letters were mailed to property owners along the four corridors.

The Kick-off Public Meeting was advertised in advance with display ads in the *Lakeland Ledger* on Friday, September 1, 2017; in the *Osceola News Gazette* on Thursday, September 7, 2017 and Saturday, September 9, 2017; in *El Sentinel* on Saturday, September 9, 2017; and the *Orlando Sentinel* on Sunday, September 10, 2017. An ad was printed in the Florida Administrative Register (FAR) on Thursday, September 7, 2017, and a press release was distributed to major media outlets on Friday, September 1, 2017.

The original media release and updates were posted on the Orange and Osceola Counties websites. Informational fliers were left at the Poinciana Branch Library, Hart Memorial Central Library, West Osceola Branch Library and Buena Ventura Lakes Branch Library.

Due to Hurricane Irma, the second Kick-off Public Meeting date was rescheduled to September 26, 2017. New notifications were posted in the *Lakeland Ledger* on Thursday, September 14, 2017; in the *Osceola News Gazette* on Saturday, September 16, 2017; and in the *Orlando Sentinel* on Sunday, September 17, 2017. A press release with rescheduled meeting information was distributed to the media outlets and officials on Tuesday, September 12, 2017; and Tuesday, September 19, 2017. Notification emails also were sent to those in the study database.

One hundred thirty-seven (137) attendees signed in, including Osceola County Commissioner and CFX Board member Fred Hawkins; Tawny Olore, Osceola County Department of Transportation and Transit; Joshua Devries, Osceola County Department of Transportation and Transit; Josiah Banet, Florida's Turnpike Enterprise; Leigh Ann Wachter, City of St. Cloud; and Chris Mills, City of St. Cloud.

Thirty-five comment forms were received at the meeting and 13 comments were received by email after the meeting.

**October 5, 2017, Kick-off Public Meeting #3:** A Kick-off Public Meeting for the Central Florida Expressway Authority (CFX) Concept, Feasibility and Mobility Studies was conducted on Thursday, October 5, 2017, from 5:30 p.m. to 7:30 p.m., at the Lake Nona High School Cafeteria, 12500 Narcoossee Road, Orlando, FL 32832. The meeting was originally scheduled on Tuesday, September 26, 2017; it was subsequently rescheduled due to Hurricane Irma. This meeting was the last of three Kick-off Public meetings scheduled to take place throughout the 60-mile corridor.

Public meeting invitation letters were sent on Thursday, August 23, 2017 by email to 61 elected officials and their aides, 50 appointed officials, 30 regional agency contacts, and 33 federal and state agency contacts. An additional 12,295 meeting invitation letters were mailed to property owners along the four corridors.

The Kick-off Public Meeting was advertised in advance with display ads in the *Lakeland Ledger* on Friday, September 1, 2017; in the *Osceola News Gazette* on Thursday, September 7, 2017 and Saturday, September 9, 2017; in *El Sentinel* on Saturday, September 9, 2017; and the *Orlando Sentinel* on Sunday, September 10, 2017. An ad was printed in the *Florida Administrative Register* (FAR) on Thursday, September 7, 2017, and a press release was distributed to major media outlets on Friday, September 1, 2017.

The original media release and updates were posted on the Orange and Osceola Counties websites. Informational fliers were left at the Poinciana Branch Library, Hart Memorial Central Library, West Osceola Branch Library and Buena Ventura Lakes Branch Library.

Due to Hurricane Irma, the Kick-off Public Meeting date was rescheduled to October 5, 2017. New notifications were posted in the *Lakeland Ledger* on Thursday, September 14, 2017; in the *Osceola News Gazette* on Saturday, September 16, 2017; and in the *Orlando Sentinel* on Sunday, September 17, 2017. A press release with rescheduled meeting information was distributed to the media outlets and officials on Tuesday, September 12, 2017; Tuesday, September 19, 2017; and Tuesday, October 3, 2017. Notification emails also were sent to those in the study database.



Two hundred nineteen (219) attendees signed in, including Orange County Commissioner Jennifer Thompson and her aide Jason Russo, City of Orlando Commissioner Jim Gray, as well as Cedric Moffett, Orange County Planning, Josh DeVries of Osceola County Transportation Planning and Tawny Olore, Osceola County Executive Director for Transportation and Transit.

CFX received 108 comment forms at the meeting and 70 comments were received by email after the meeting. The comments included a petition from Amy Stiling of Eagle Creek with more than 300 signatures.

Display materials, the presentation and handouts were posted on the Concept Studies webpage on Friday, September 29, 2017. Public meeting photos and links to the meeting documents were posted on Facebook on Sunday, October 1, 2017 and Monday, October 9, 2017.

Input from the Kick-off Public Meetings and other community engagement, as well as continued engineering analysis, was used to refine some alternatives and develop new ones. The latest alternatives were displayed at a second round of public meetings on February 13, 15 and 21, 2018.

**February 13, 2018, Second Round Public Meeting #1:** The first meeting of the second round of public meetings for the Central Florida Expressway Authority's (CFX) Concept, Feasibility and Mobility Studies was held on Tuesday, February 13, 2018, from 5:30 p.m. to 7:30 p.m., at the St. Cloud High School Cafeteria, 2000 Bulldog Lane, St. Cloud, FL 34769. This meeting was the first of three opportunities scheduled to take place throughout the 60-mile corridor to allow the community to view the latest alignment alternatives and other draft report materials.

Public meeting invitation letters were sent on Friday, January 26, 2018, by email to 62 elected officials and their aides, 50 appointed officials, 30 regional agency contacts, and 33 federal and state agency contacts. An additional 12,669 meeting invitation letters were mailed to property owners and tenants within the four corridors on Thursday, January 23, 2018.

The public meetings were advertised in advance with display ads in the *Lakeland Ledger* on Sunday, February 4, 2018 and Sunday February 11, 2018; in the *Osceola News Gazette* on Thursday, February 8, 2018 and Saturday, February 10, 2018; in *El Sentinel* on Saturday, February 3, 2018 and Saturday, February 10, 2018; and the *Orlando Sentinel's* Orange and Osceola counties editions on Sunday, January 28, 2018 and Thursday, February 8, 2018. An ad was printed in the *Florida Administrative Register* (FAR) on Tuesday, January 30, 2018, and a press release was distributed to major media outlets on Friday, February 9, 2018.

A total of 360 attendees signed in, including Tawny Olore, Osceola County Department of Transportation and Transit; Joshua Devries, Osceola County Department of Transportation and Transit; Nathan Blackwell, City of St. Cloud; and Nick Lepp, MetroPlan Orlando Manager of Long Range Planning. A total of 77 written comments were received during the public meeting.

**February 15, 2018, Second Round Public Meeting #2:** The second meeting of the second round of public meetings for the Central Florida Expressway Authority's (CFX) Concept, Feasibility and

Mobility Studies was held on Thursday, February 15, 2018, from 5:30 p.m. to 7:30 p.m., at the Lake Nona Middle School Cafeteria, 13700 Narcoossee Road, Orlando, FL 32832. This meeting was the second of three opportunities scheduled to take place throughout the 60-mile corridor to allow the community to view the latest alignment alternatives and other draft report materials.

Public meeting invitation letters were sent on Friday, January 26, 2018, by email to 62 elected officials and their aides, 50 appointed officials, 30 regional agency contacts, and 33 federal and state agency contacts. An additional 12,669 meeting invitation letters were mailed to property owners within the four corridors on Thursday, January 23, 2018.

The public meetings were advertised in advance with display ads in the *Lakeland Ledger* on Sunday, February 4, 2018 and Sunday February 11, 2018; in the *Osceola News Gazette* on Thursday, February 8, 2018 and Saturday, February 10, 2018; in *El Sentinel* on Saturday, February 3, 2018 and Saturday, February 10, 2018; and the *Orlando Sentinel* Orange and Osceola counties editions on Sunday, January 28, 2018 and Thursday, February 8, 2018. An ad was printed in the *Florida Administrative Register* (FAR) on Tuesday, January 30, 2018, and a press release was distributed to major media outlets on Friday, February 9, 2018.

At the meeting, 423 attendees signed in, including Pete Clarke, Orange County Commissioner; Tawny Olore, Osceola County Department of Transportation and Transit; Joshua Devries, Osceola County Department of Transportation and Transit; Bill Burchfield, Osceola County Property Appraiser's Office; Nathan Blackwell, City of St. Cloud; Renzo Nastasi, Orange County Transportation Planning; and Nick Lepp, MetroPlan Orlando Manager of Long Range Planning. A total of 231 comment forms were received at the meeting.

**February 21, 2018, Second Round Public Meeting #3:** The third meeting of the second round of public meetings for the Central Florida Expressway Authority's (CFX) Concept, Feasibility and Mobility Studies was held on Wednesday, February 21, 2018, from 5:30 p.m. to 7:30 p.m., at the Association of Poinciana Villages Community Center, 445 Marigold Avenue, Poinciana, FL 34759. This meeting was the last of three opportunities scheduled to take place throughout the 60-mile corridor to allow the community to view the latest alignment alternatives and other draft report materials.

Public meeting invitation letters were sent on Friday, January 26, 2018, by email to 62 elected officials and their aides, 50 appointed officials, 30 regional agency contacts, and 33 federal and state agency contacts. An additional 12,669 meeting invitation letters were mailed to property owners within the four corridors on Thursday, January 23, 2018.

The public meetings were advertised in advance with display ads in the *Lakeland Ledger* on Sunday, February 4, 2018 and Sunday February 11, 2018; in the *Osceola News Gazette* on Thursday, February 8, 2018 and Saturday, February 10, 2018; in *El Sentinel* on Saturday, February 3, 2018 and Saturday, February 10, 2018; and the *Orlando Sentinel* Orange and Osceola counties



editions on Sunday, January 28, 2018 and Thursday, February 8, 2018. An ad was printed in the *Florida Administrative Register* (FAR) on Tuesday, January 30, 2018, and a press release was distributed to major media outlets on Friday, February 9, 2018.

A total of 141 attendees signed in, including David Washington, Aide for Orange County Commissioner Maribel Cordero; and Joshua Devries, Osceola County Department of Transportation and Transit. A total of 42 comment forms were received at the meeting.

#### 8.2.6 Summary of Public Comments

The more than 630 comment forms received at the six public meetings touched on an array of topics, with concerns about impacts to the environment and conservation lands, as well as potential impacts to residential properties, being the most common themes.

As most of the comments were received during the second round of public meetings – more than 450 – and dealt with the latest alternatives, the following is a summary of the feedback received from those meetings relating specifically to the Northeast Connector Expressway:

- **February 13, 2018, Comments - Second Round Public Meeting #1:**

NORTHEAST CONNECTOR EXPRESSWAY:

- Keep away from Lake Gentry. (2)
- Preferred blue/yellow route for less impact in mature neighborhoods and natural/recreation area.
- Bay Lake Ranch residents oppose the Northeast Connector Expressway's encroachment near our homes.
- Remove corridor E from further consideration.
- Stay out of Suburban Estates. (21)
  - Important natural and recreation area.
  - Negative impact to property.

GENERAL COMMENTS:

- Consider alternatives that don't displace animals or humans. (5)
- Upset with presentation, meeting style. (2)
- Ensure land purchase for wildlife conservation.
- No toll roads; work on local roads first.
- We don't need all these roads and development. (2)

- **February 15, 2018, Comments - Second Round Public Meeting #2:**

NORTHEAST CONNECTOR EXPRESSWAY:

- Corridor E (Blue line) will impact gopher tortoises; unacceptable.
- Move east a half mile north to stay out of Suburban Estates.
- Make Lake X general mitigation area.
- Stay out of Suburban Estates. (4)
- Impact to citrus grove near Lake Pearl, take road east of Lake Pearl.
- We need the road; an expressway to take traffic off Narcoossee.

GENERAL COMMENTS:

- No more development/opposed to expressway. (33)
- Please consider the highway's impact on the area schools and neighborhoods that would be impacted by the increase in traffic and pollution.

• **February 21, 2018, Comments - Second Round Public Meeting #3:**

NORTHEAST CONNECTOR EXPRESSWAY:

- Stay out of Lake Gentry Farms. (2)
- Oppose A & B (yellow and red) corridors.

GENERAL COMMENTS:

- Oppose project. (2)
- Must put in sound walls.

Additionally, 384 emailed comments were received through March 7, following Public Meetings held February 13, 15 and 21, 2018. The information below reflects the general nature of comments received regarding the Northeast Connector Expressway. Following is a summary of those emailed comments.

NORTHEAST CONNECTOR EXPRESSWAY:

- The most desirable alternative is for this connector to be located on the eastern outskirts of Harmony and Lake Conlin (Lake X). (5)
- Strong opposition to Option A of the Northeast Connector Expressway, largely due to the number of families that would likely be impacted.
- Please take into consideration all the folks that will be affected by the expressway in the Bay Lake Estates and Bay Lake Ranch communities – keep roadway as far east as possible. (2)

GENERAL COMMENTS:

- Lack of notification. (2)
- Road will actually expand urban sprawl and add to congestion. (3)



- At what point do you say enough is enough? Stop marketing the area and driving more people here.
- The quick sprawl of development in this area is leaving no room for our native wildlife, and no areas of open space that is important to people's well-being. (2)

### 8.3 Project Website

Concept Study information was housed for easy access on a public involvement webpage (<https://www.cfxway.com/agency-information/plans-studies/project-studies/public-involvement/>) and individual study corridor webpages on the [www.cfxway.com](http://www.cfxway.com) website. The webpages were updated with the latest corridor exhibits, schedules, handouts, presentations, meeting notices and summaries, photos, and news releases. Information from the EAG and PAG meetings also were posted on the webpages.

An electronic comment form was available on the public involvement page, as well as a form to request to receive email updates. All told, the webpages received more than 5,000 visits during the 12-month study period.

Additionally, a study Facebook page provided meeting notices and summaries, exhibits, photos, links to information available on the website, and more.

### 8.4 Media Coverage

The Corridor-wide Public Involvement Program included using media outlets to help share information and meeting notices for the four concept studies throughout the 60-mile corridor. A kick-off media release was sent on May 24, 2017. News releases were sent to the media in advance of each round of public meetings in September, October, and February.

Additionally, several Letters to the Editor were submitted to Osceola County media outlets on behalf of the CFX Board Chairman regarding public participation in the studies, specifically the public meetings. CFX and public involvement staff accommodated numerous media interview requests pertaining to the studies.

A news release was sent, and multiple news agencies ran stories on the March 8 CFX Board meeting, where the Board advanced the Poinciana Parkway Extension and Osceola Parkway Extension to the Project Development and Environment (PD&E) Study phase.

Stories appeared in the *Orlando Sentinel*, *Orlando Business Journal*, *Osceola News Gazette*, *El Osceola Star*, and the *Orlando Weekly*. Television coverage included stories on Spectrum News 13 (formerly CFNews 13) and WFTV Channel 9 (ABC). Online media coverage was included on the *Florida Politics* website and *Growth Spotter* (*Orlando Sentinel* Online Development publication). *Positively Osceola* also posted interviews from several of the public meetings on their Facebook page. All told, at least 25 stories were published about the concept studies.

Most of the media coverage focused on the potential impacts of the Osceola Parkway Extension on the Split Oak Forest Wildlife Environmental Area (SOFWEA) and adjacent communities.

The following table provides detail on the media coverage for the concept studies:

Table 8-1  
Media Coverage

CFX Concept, Feasibility & Mobility Studies' Media Coverage					
Date	Media Outlet	Medium	Type of Report	Headline	Summary
03/05/17	<i>Orlando Sentinel</i>	Print	News	Revered Split Oak Parkland Faces Road Threat	History of Split Oak. Describes road and development plans.
03/07/17	Spectrum News 13	TV	News	Osceola Parkway Plan Calls for Splitting Split Oak Reserve	Report on opposition at Orange County Board Meeting.
03/09/17	Florida Politics	Online	News	Central Florida Expressway Authority to look closely at Split Oak Park highway proposal	Report on opposition at Orange County Board Meeting.
03/09/17	<i>Orlando Sentinel</i>	Print	News	Agency wants comment on road slated to cross Split Oak forest	Report on launch of study.
09/14/17	<i>Orlando Business Journal</i>	Online	News	CFX Evaluates New Connections for I-4, Poinciana Parkway, More	Report on four studies and focus on future I-4 connection.
09/26/17	<i>Growth Spotter (Orlando Sentinel)</i>	Online	News	Feasibility Studies for Four New Osceola Toll Roads at Midway Point	Update on the Osceola Parkway Extension and fall public meetings.
10/02/17	<i>El Osceola Star</i>	Print	Letter	To My Osceola County Neighbors	County Commissioner invites residents to public meeting.



CFX Concept, Feasibility & Mobility Studies' Media Coverage					
Date	Media Outlet	Medium	Type of Report	Headline	Summary
10/04/17	<i>Orlando Sentinel</i>	Print	News	Expressway Authority to Hold Public Meeting for Road Across Split Oak Forest	Scene setter for public meeting.
11/04/17	<i>Orlando Sentinel</i>	Print	Editorial	Don't Cut Wildlife Preserve in Two with Osceola Parkway Extension	Cited habitat and public desire to protect environment.
11/24/17	<i>Osceola News Gazette</i>	Print	News	Residents to Commission: Protect Split Oak	Report on opposition to project.
12/11/17	<i>Orlando Sentinel</i>	Print	News	Central Florida's Toll Road Agency Presents Proposal to Build Road in Park Land	Report on offer to conserve other acreage in return for Split Oak land.
12/14/17	<i>Orlando Sentinel</i>	Print	News	Wekiva Parkway interchange is nixed as proposal advances for road through Split Oak	Report on CFX Board Meeting.
01/12/18	<i>Orlando Sentinel</i>	Print	News	Florida National Scenic Trail to Move Away from Roads	Article on trail mentions opposition to Osceola Parkway Extension.
01/23/18	<i>Osceola News-Gazette</i>	Print	News	OSWCD Urging CFX to Avoid Split Oak in Road Expansion	Report that Osceola Soil and Water Conservation District urges CFX to avoid Split Oak Forest.

CFX Concept, Feasibility & Mobility Studies' Media Coverage					
Date	Media Outlet	Medium	Type of Report	Headline	Summary
01/24/18	<i>Osceola News-Gazette</i>	Print	News	Residents still fighting to save Split Oak	Quotes Larry Schneck of Osceola Soil and Water Conservation District urging avoidance of Split Oak. Mentions land swap.
02/02/18	<i>Growth Spotter (Orlando Sentinel)</i>	Online	News	Feasibility Studies Nearly Complete for Four New Osceola & CFX Toll Roads	Promoted the second round of public meetings and recapped study progress.
02/07/18	<i>Orlando Weekly</i>	Print	News	Environmental activists rally to save Split Oak Forest from expanding toll road	Noted concerns about potential alternative impacts to Split Oak.
02/08/18	WFTV Ch. 9	TV	News	Future Osceola Parkway Extension Might Develop Through Neighborhood	Describes concerns of Lake Ajay residents.
02/09/18	<i>Orlando Business Journal</i>	Print	News	Here's two Spots Where New Road Might be Built – Both Controversial	Noted various alternative impacts to SOFWEA and Lake Ajay development.
02/09/18	<i>Orlando Sentinel</i>	Print	News	Split Oak Forest Fight Pits Preservationists Against Neighborhood	Quotes Lake Ajay residents and preservationist on Osceola Parkway Extension routes.



CFX Concept, Feasibility & Mobility Studies' Media Coverage					
Date	Media Outlet	Medium	Type of Report	Headline	Summary
02/15/18	<i>Orlando Sentinel</i>	Print	Opinion	Toll Road Motives	Real reason for Osceola Parkway Extension is to support development.
03/05/18	<i>Orlando Sentinel</i>	Print	Letter	My Word: Don't imperil fragile wildlife to extend the Osceola Parkway	Opposed alternatives with potential impacts to Split Oak even if other land is preserved.
03/05/18	<i>Growth Spotter (Orlando Sentinel)</i>	Online	News	CFX Study: New Toll Road Would Minimize Impacts to Split Oak Forest	Noted latest alternatives and which study corridors CFX Board approved to move forward.
03/09/18	<i>Orlando Business Journal</i>	Online	News	Controversial Osceola Parkway Extension gets OK to move forward, may cost \$1B	Recapped CFX Board advancing two studies to PD&E.
03/14/18	<i>Spectrum News 13</i>	TV	News	Osceola Parkway Expansion Worries Residents	Lake Ajay resident concerns, Osceola Parkway Extension moves forward to PD&E Study.

## **9. Feasibility & Viability of the Proposed Project**

### **9.1 Benefits of the Proposed Project**

The Northeast Connector Expressway addresses the project needs, as outlined in Chapter 2, by providing system linkage, providing regional connectivity and mobility, meeting social and economic needs, adding additional transportation capacity, achieving consistency with transportation plans, providing multi-modal opportunities, and improving safety and emergency responses:

**System Linkage** – The proposed project provides a direct limited access link between Florida’s Turnpike, US 192 (SR 500), and Nova Road (CR 532). Florida’s Turnpike is part of Florida’s Strategic Intermodal System, which is a statewide network of high-priority transportation facilities, including highways, freight rail lines, airports, seaports, and other key intermodal facilities. The Northeast Connector Expressway is part of a planned limited access, high-speed toll facility identified in the CFX 2040 mater plan and the OCX master plan that, when completed, will provide system linkage to several SIS facilities including Florida’s Turnpike, I-4 and SR 417.

**Regional Connectivity and Mobility** – Due to the anticipated population and employment growth in the study area, the proposed facility will play a role in accommodating travel demands and improving the movement of goods and people. The Northeast Connector Expressway will provide a connection to Florida’s Turnpike and ultimately to I-4 via the proposed Southport Connector Expressway and Poinciana Parkway Extension/I-4 Connector. The Northeast Connector Expressway will also provide a connection to SR 417 and the Orlando International Airport (OIA) via the proposed Osceola Parkway Extension. Locally, in St. Cloud and its surrounding areas, the Northeast Connector Expressway will provide a limited access, highspeed connection between several roadways including US 192 (SR 500) and Nova Road (CR 532).

**Social and Economic Needs** – The proposed facility would support the planned economic development within the study area consistent with the Osceola County Comprehensive Plan. Key planned developments include Sunbridge, Harmony, and Center Lake. Together with Poinciana Parkway Extension/I-4 Connector, the Southport Connector Expressway, and the Osceola Parkway Extension, the Northeast Connector Expressway is planned to meet the transportation needs of Osceola County.

**Additional Transportation Capacity** – The proposed facility would relieve congestion on local roads by separating local and regional traffic.

**Consistency with Transportation Plans** – The Northeast Connector Expressway is identified in, and is consistent with, the MetroPlan Orlando (MPO) Long Range Transportation Plan (LRTP), the Osceola County Comprehensive Plan, the CFX 2040 Master Plan, and the OCX Master Plan.



**Multimodal Opportunities** – Opportunities to provide multi-modal improvements will be considered as part of the alternatives developed to address the need and purpose of this project. CFX has established a multi-modal policy to fund or partner on multi-modal initiatives where the revenue generated from the investment equals the project cost or where toll user benefits are equal to or exceed the project's cost. In addition, Osceola County's Comprehensive Plan calls for an integrated, multimodal transportation network.

**Safety and Evacuation Support** – The Florida Division of Emergency Management has identified I-4, Florida's Turnpike, and SR 417 as significant emergency evacuation routes in the region. Other evacuation routes within the study area are US 192 (SR 500) and Nova Road (CR 532). The Northeast Connector Expressway would provide a direct connection to Florida's Turnpike and indirectly to I-4 and SR 417. The Northeast Connector Expressway would also enhance the connectivity to US 192 (SR 500) and Nova Road (CR 532) via the proposed interchanges at these locations.

## 9.2 Controversy of the Proposed Project

While general feedback for the Northeast Connector Expressway as a whole was mostly positive, there was feedback received regarding some of the alternatives being proposed:

Tavistock/Farmland Reserve, the representatives of Sunbridge, a future planned development, generally favored corridor B (red/yellow) and corridor E (blue/yellow) as they enter the southern portion of Sunbridge. The representatives stated that Corridor A (red) was not an acceptable corridor.

Kent and Anna Landman, representatives of Harmony, a future planned development, expressed concerns with any corridor alternative that would bi-sect the future development between Alligator Lake and Buck Lake. They also mentioned that a lot of effort had been put into refining and narrowing the previous OCX Masterplan corridor near Old Melbourne Highway and that they would pursue available avenues to facilitate focusing the study efforts within the adopted corridor.

Sandy Smith, a representative of Lake X, a future planned development, provided feedback as well. He stated that he would prefer any corridor that impacts Lake X to do so at the western property line of the development. He further stated that he would be strongly opposed to any corridor that traverses in a northeast direction north of Lake Conlin.

Representatives of the Alligator Lake Chain Alliance were in support of any corridors that were located to the south and east and not in support of any corridor located in the middle of the study area near Alligator Lake.

Stan Pietkiewicz of Titan Properties, which owns approximately 60 acres located south of Old Melbourne Highway, was not in support of any corridors which traversed through his property. He however expressed interest in corridors traversing between Cat Lake & Lake Conlin.

Don Whyte with Deseret Ranches of Florida provided feedback on the Northeast Connector Expressway study. He stated that he was most interested in the Osceola Parkway Extension to Sunbridge and an eastern expressway extension along Nova Road. He stated that the recommendations that came out of the East Central Florida Corridor Task Force should be considered, and that any deviation should be explained. The extension along Nova Road would be consistent with Corridor F from the Task Force report. He stated that the Corridor F improvement could be built initially as a 2-lane facility with at-grade access.

Stan Touchstone, on behalf of the residents of Lake Gentry, stated that residents living north of the lake do not prefer Corridor A (red). He went on to say that corridors south of the lake are preferred.

The Dymmek, Bailes and a number of other families are in favor of corridor E (blue/yellow) with the potential of a spur along Old Melbourne Highway south to US 192. The Dymmek family also stated that they prefer corridor A (red).

Suburban Estates, a multi parcel/owner recreational land located east of Lake Gentry and south of Brick Lake strongly opposes Corridor D (blue/brown/yellow) and Corridor E (blue/yellow). This is due to the corridors dividing the lands. Owners of a single parcel of land within the recreational land have leased access to all the parcels.

### **9.3 Support for the Proposed Project**

Support for this project was shown during meetings with the Project Advisory Group, the Environmental Advisory Group as well as from several stakeholders and the public. The Northeast Connector Expressway would provide key system linkage and regional connectivity. The facility would provide for potential multimodal facilities as well as enhance safety and evacuation routes.

Generally, the stakeholders listed in section 9.2 also expressed overall support for the project. Any specific concerns or corridors that they were not in favor of are detailed in section 9.2.

Stakeholders expressing support for the project include:

- Florida's Turnpike Enterprise (System connection)
- Osceola County



## 9.4 Projected Project Costs

Table 9-1 summarizes the projected cost for each alternative. These costs include roadway construction, bridge construction, interchange construction, toll collection equipment, right-of-way (including ponds) and mitigation costs for wetlands and species. The costs presented are in 2017 dollars.

Table 9-1  
Northeast Connector Expressway Summary of Projected Costs

Cost Element	Corridor A – Red	Corridor B – Red/Yellow	Corridor C – Blue/Cyan/Yellow	Corridor D – Blue/Brown/Yellow	Corridor E – Blue/Yellow
Roadway Construction	\$339,400,000	\$372,000,000	\$393,200,000	\$488,500,000	\$500,600,000
Bridges Construction	\$67,600,000	\$92,500,000	\$79,900,000	\$73,200,000	\$98,400,000
Interchanges Construction	\$457,800,000	\$475,200,000	\$519,800,000	\$483,200,000	\$493,400,000
Toll Collection Equipment	\$5,100,000	\$5,100,000	\$5,100,000	\$5,100,000	\$5,100,000
Right-of-Way (including ponds)	\$298,900,000	\$242,600,000	\$210,600,000	\$201,600,000	\$210,800,000
Mitigation, Wetlands, & Wildlife	\$26,900,000	\$64,800,000	\$67,400,000	\$80,100,000	\$100,700,000
<b>Total</b>	<b>\$1,195,700,000</b>	<b>\$1,252,200,000</b>	<b>\$1,276,000,000</b>	<b>\$1,331,700,000</b>	<b>\$1,409,000,000</b>

## 9.5 Projected Traffic and Revenue

### 9.5.1 2040 Revenue Analysis

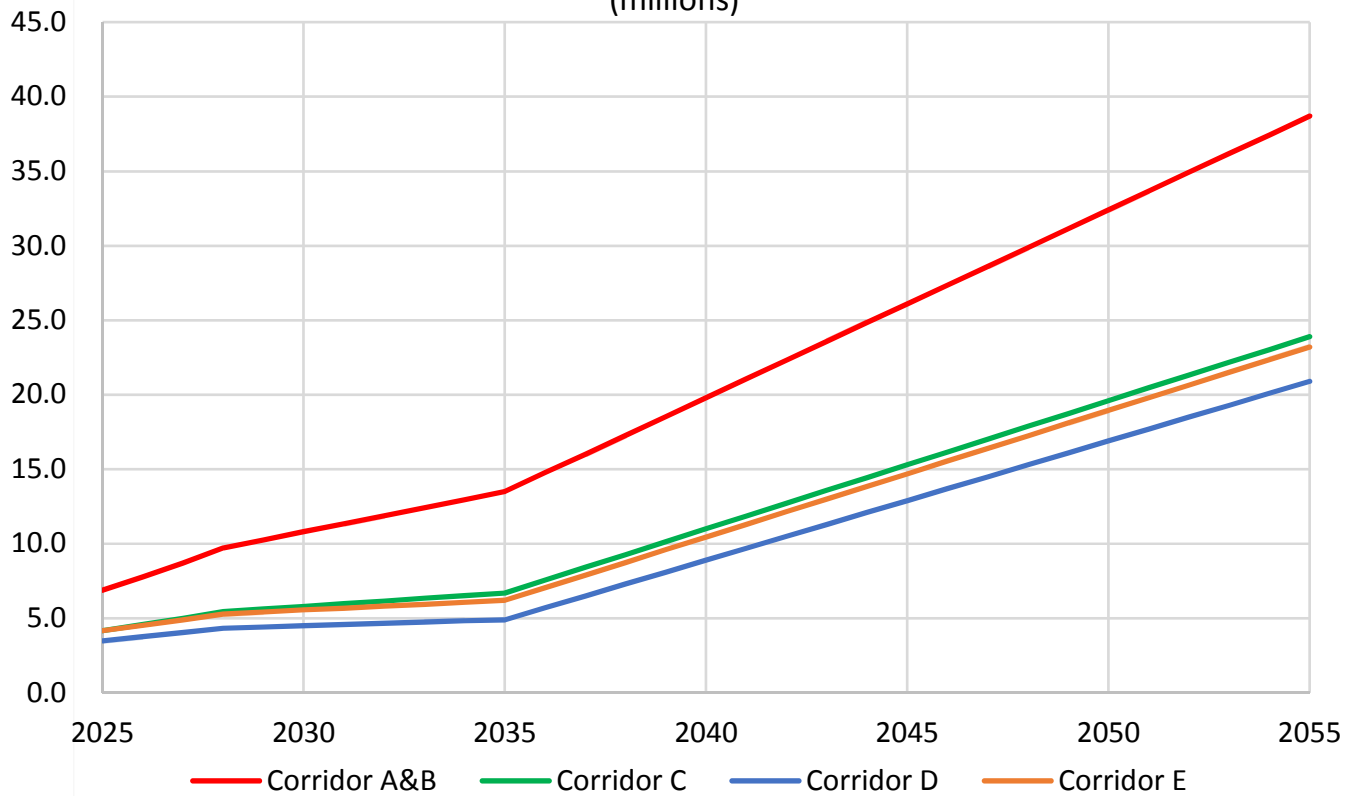
Using the CFX 3.0 travel demand model, CDM Smith prepared planning-level estimates of annual transaction and toll revenue attributable to the proposed Northeast Connector Expressway project. Traffic and revenue (T&R) estimates were prepared for each of the alternatives based on the physical alignments and connection points to the local street system. Toll collection was assumed to be all-electronic with one toll collection location per segment (between interchanges). Toll rates were set on a per-mile basis, with a base toll rate of \$0.18/mile in FY 2017 dollars, escalated at 1.5% per year, consistent with the CFX Customer First Toll Policy. Toll sensitivity

analysis was completed for each of the project alternatives with a No-build, Build No- Toll, and a range of toll rates between \$0.13/mile to \$0.28/mile. These estimates contain a T&R from new toll collection locations on the Northeast Connector Expressway. The Medium socio-economic data set was used for the traffic and revenue estimates, with sensitivity testing completed using the low-side and high-side socio-economic data sets. A summary of the annual transactions and annual toll revenue of each alternative over the thirty-year study period are depicted on Figure 9-1.

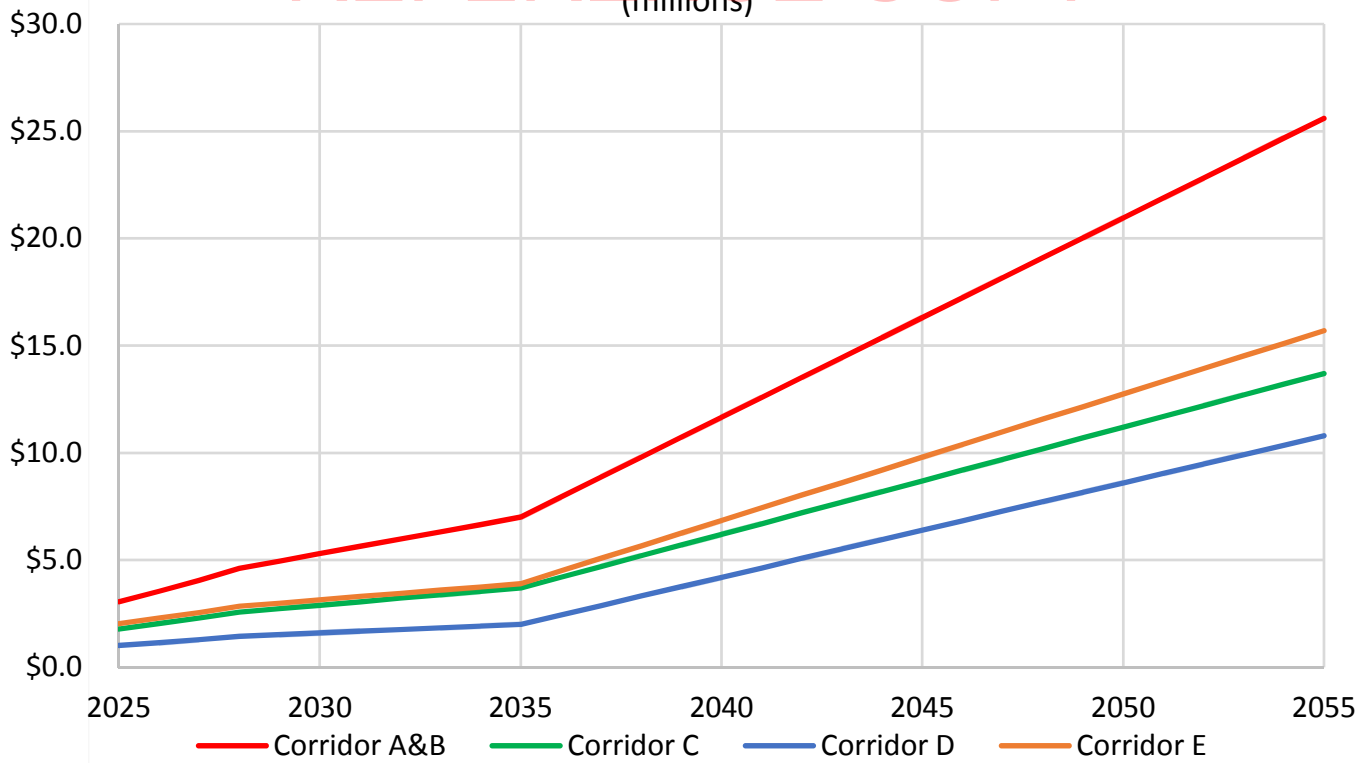
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## Annual Transactions (millions)



## Annual Toll Revenue (millions)



### 9.5.2 Present Value

To determine the general viability of the Northeast Connector Expressway, the Present Value (PV) of the 30-year toll revenue stream was calculated. A summary of this analysis by alternative is shown in Table 9-2. The PV for the 30-year revenue stream with a discount rate of 4.00% starting on July 1, 2018 ranges between \$75.5 to \$177.4 million for the revenues collected on the Northeast Connector Expressway. Given the conceptual nature of the study, CDM Smith cautions that the PV of the alternatives can range between -25% on the low side to +20% on the high side.

Table 9-2  
Present Value of Revenue Stream for Northeast Connector Expressway Alternatives

Alternative	Corridor A- Red	Corridor B- Red/Yellow	Corridor C- Blue/Cyan/ Yellow	Corridor D- Blue/Brown/ Yellow	Corridor E- Blue/Yellow
Revenue (millions)	\$177.4	\$110.6	\$110.6	\$75.5	\$123.3
Range on Low Side	-25%	-25%	-25%	-25%	-25%
Range on High Side	20%	20%	20%	20%	20%
Length toll road (miles)	16	19	21	23	23

### 9.6 Alternative Comparison Matrix

An alternative comparison matrix is provided in Tables 9-3 and 9-4. This matrix provides a convenient comparison of the various information and effects of all the alternatives evaluated.



**Table 9-3**  
**Northeast Connector Expressway Alternative Comparison Matrix**

<b>Evaluation Criteria</b>	<b>Unit of Measure</b>	<b>Corridor A – Red</b>	<b>Corridor B – Red/Yellow</b>	<b>Corridor C – Blue/Cyan/Yellow</b>	<b>Corridor D – Blue/Brown/Yellow</b>	<b>Corridor E – Blue/Yellow</b>
<b>Physical</b>						
Major Utility Conflicts - Existing	No. of Conflicts	5	5	3	3	2
Major Utility Conflicts - Planned	No. of Conflicts	8	5	0	0	0
Contamination Sites & Facilities	No. of Conflicts	2	0	0	0	1
Railroad Involvement	No. of Conflicts	0	0	0	0	0
<b>Cultural Environment Effects</b>						
Public Lands	acres	1	0	0	0	0
Section 4(f) Coordination Required (Public Recreation Lands, Wildlife Refuges, etc.)	Y/N	N	N	N	N	N
Potential Historic Resources	No. of Conflicts	16	4	3	2	0
Potential Historic Linear Resources (Canals/Highways/Railroads)	No. of Resources	2	5	6	5	5
Potential Archaeological Resources	No. of Resources	0	0	0	0	0
<b>Natural Environment</b>						
Water Features						
Ponds / Lakes	acres	11	13	14	9	6
Canals/Regulated Floodways	No. of Conflicts	1	3	3	2	2
Flood Hazard Areas - 100 Year Floodplain	acres	417	344	409	460	613
Wetlands (non-forested and forested)	acres	139	211	232	324	357
Potential Habitat - Federal Listed Species	acres	1,044	1,153	1,077	1,249	1,180
Potential Habitat - State Listed Species	acres	1,109	1,216	1,207	1,206	1,256
Potential Bald Eagle Nest	Y/N	Y	N	N	N	N
Potential Species Impacts (composite rating)	Rating	High	Medium	High	High	High
Mitigation Banks						
Lake X Ranch Mitigation Bank	acres	0	92	92	92	150
Conservation Easements	acres	0	0	0	0	0

Evaluation Criteria	Unit of Measure	Corridor A – Red	Corridor B – Red/Yellow	Corridor C – Blue/Cyan/Yellow	Corridor D – Blue/Brown/Yellow	Corridor E – Blue/Yellow
<b>Social</b>						
Right-of-Way Area (including proposed ponds)	acres	1,349	1,447	1,581	1,707	1,758
Potential Residential Impacts (includes partially impacted parcels)	Total Parcels	365	74	22	28	3
<i>Existing</i>	<i>Parcels</i>	181	55	3	9	3
<i>Planned</i>	<i>Parcels</i>	186	19	19	19	0
Potential Non-Residential Impacts (includes partially impacted parcels)	Total Parcels	232	152	141	118	122
<i>Existing</i>	<i>Parcels</i>	232	151	140	117	122
<i>Planned</i>	<i>Parcels</i>	0	1	1	1	0
Community Facilities	No. of Conflicts	2	0	0	0	0
Parks and Recreational Facilities (public and private)	No. of Conflicts	1	0	0	0	0
Trails	No. of Conflicts	2	5	5	5	7
Community Cohesion Effects	Ranking	Medium	Medium	Low	Low	Low
Socioeconomic Impacts to Special Populations	Ranking	Medium	Low	Low	Low	Low
Proposed Development / Development of Regional Impact	acres	622	761	806	890	887

Table 9-4  
Alternatives Evaluation Design Elements Matrix

Design Element	Unit of Measure	Corridor A – Red	Corridor B – Red/Yellow	Corridor C – Blue/Cyan/Yellow	Corridor D – Blue/Brown/Yellow	Corridor E – Blue/Yellow
Alternative Length (approximate)	Miles	16	19	21	23	23
Proposed Right-of-Way Width (general and varies at interchanges)	feet	324	324	324	324	324



Right-of-Way Area (including proposed ponds)	acres	1,349	1,447	1,581	1,707	1,758
Proposed Bridges (total structures per Alternative and total length of all structures)	Number of Structures	32	42	38	36	40
	feet	20,306	21,655	21,146	21,049	22,632
Proposed Interchanges	Number	5	6	6	5	5
Projected 2045 Annual AADT Volume (as a tolled facility)	vehicles	25,600	16,900	16,900	13,900	13,900

## 9.7 CFX Financial Viability Criteria

The overall goal of this concept, feasibility and mobility study was to aid the Central Florida Expressway Authority (CFX) in determining whether the Northeast Connector Expressway meets the collective definition of viability.

For reference, viability was defined in the Interlocal Agreement by and among CFX, Osceola County and the Osceola County Expressway Authority (OCX) as follows:

*“Viable” or “Viability” shall mean an OCX Segment or any portion thereof that is projected in writing by CFX’s traffic and revenue consultant to generate toll revenues over a period of thirty years equal to at least fifty percent (50%) of the cost of such OCX Segment or applicable portion thereof...”*

Table 9-4 summarizes the viability of the various alternatives. PV revenues (from Table 9-2) are compared to Total Costs for each alternative (from Tables 9-1).

As described in Section 9.5.2, the revenues can range between -25% on the low side to +20% on the high side. These percentages have been applied to the projected revenues. The projected PV revenues were divided by the total project cost to determine the percentage for assessing viability. None of the alternatives have revenue percentages equal to at least fifty percent (50%) of the cost of the project; therefore, none of the alternatives are viable for the projected conditions. Corridor A-Red has the highest percent revenue of cost, reaching 18% for the high side revenue. Corridor D-Blue/Brown/Yellow has the lowest percent revenue of cost at 5% for the low side revenue.

Table 9-5  
Northeast Connector Expressway Projected Toll Revenues as a Percentage of Total Cost

Alternative	Total Cost	PV Revenue Stream	Range on Low Side	Range on High Side	Projected Low Revenue	Percent of Total Cost	Projected High Revenue	Percent of Total Cost
Corridor A - Red	\$1,195,700,000	\$177,400,000	-25%	20%	\$130,000,000	11%	\$210,000,000	18%
Corridor B - Red/Yellow	\$1,252,200,000	\$110,600,000	-25%	20%	\$80,000,000	6%	\$130,000,000	10%
Corridor C - Blue/Cyan/Yellow	\$1,276,000,000	\$110,600,000	-25%	20%	\$80,000,000	6%	\$130,000,000	10%
Corridor D - Blue/Brown/Yellow	\$1,331,700,000	\$75,500,000	-25%	20%	\$60,000,000	5%	\$90,000,000	7%
Corridor E - Blue/Yellow	\$1,409,000,000	\$123,300,000	-25%	20%	\$90,000,000	6%	\$150,000,000	11%



## 9.8 Findings of the Concept, Feasibility, & Mobility Study

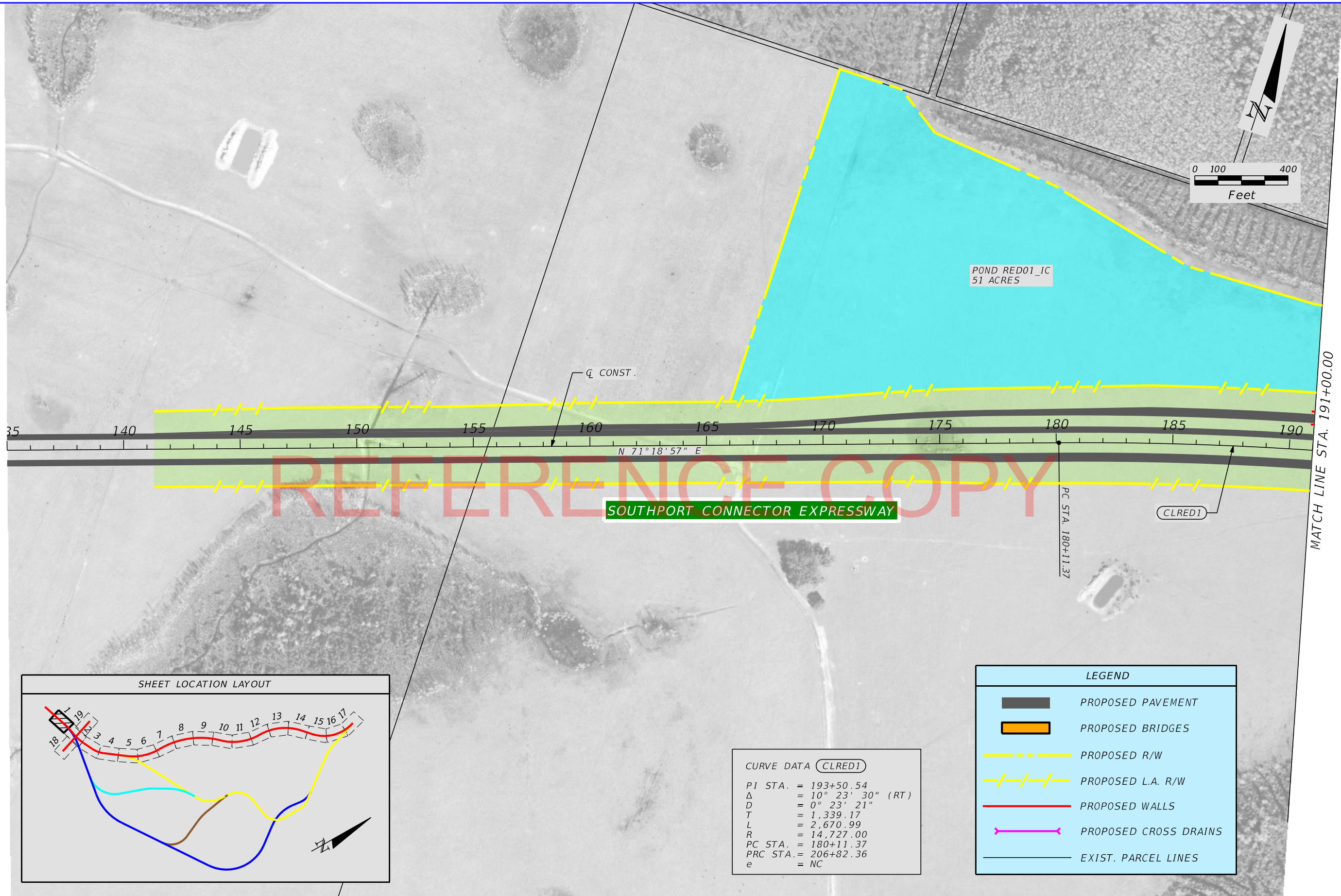
The purpose of this Concept, Feasibility, and Mobility report is to determine if the identified alternatives are feasible from an engineering and environmental standpoint and viable from a financial standpoint. Regarding engineering and environmental issues, no “fatal flaws” have been observed. However, at this time, the Northeast Connector Expressway does not meet the viability requirements to move forward to the PD&E phase. A project is considered viable if the toll revenue over 30 years covers at least 50% of the project costs. The Northeast Connector Expressway projected toll revenue compared to the estimated cost ranges from 7% to 18%, depending on the alternative and revenue stream. Therefore, the Northeast Connector Expressway is considered feasible but not viable at this time.

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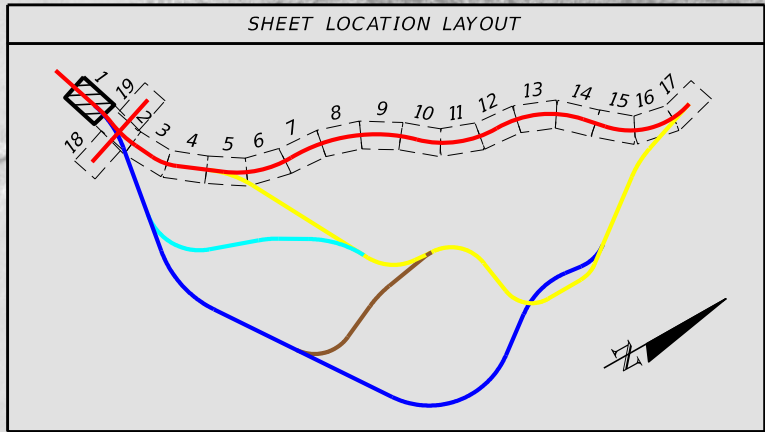
Appendix A  
Corridor A-Red Concept Plans

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MATCH LINE STA. 191+00.00



SOUTHPORT CONNECTOR EXPRESSWAY

CURVE DATA (CLRED1)	
PI STA.	= 193+50.54
$\Delta$	= 10° 23' 30" (RT)
D	= 0° 23' 21" (RT)
T	= 1,339.17
L	= 2,670.99
R	= 14,727.00
PC STA.	= 180+11.37
PRC STA.	= 206+82.36
e	= NC

LEGEND	
	PROPOSED PAVEMENT
	PROPOSED BRIDGES
	PROPOSED R/W
	PROPOSED L.A. R/W
	PROPOSED WALLS
	PROPOSED CROSS DRAINS
	EXIST. PARCEL LINES



NORTHEAST CONNECTOR EXPRESSWAY CONCEPT, FEASIBILITY & MOBILITY STUDY

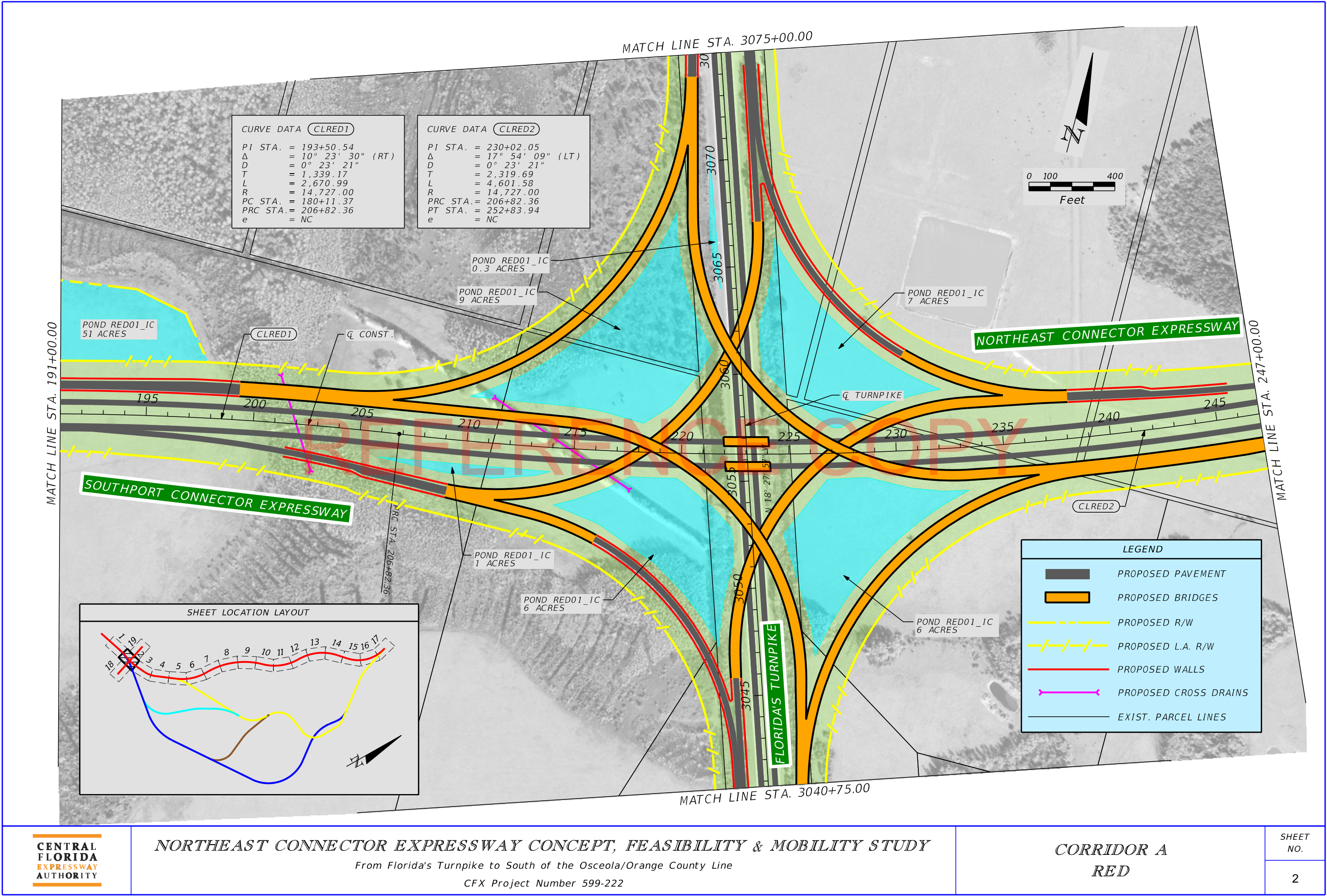
From Florida's Turnpike to South of the Osceola/Orange County Line

CFX Project Number 599-222

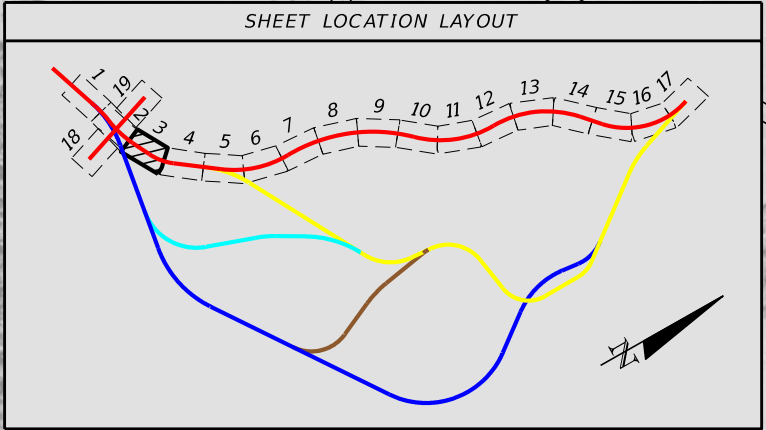
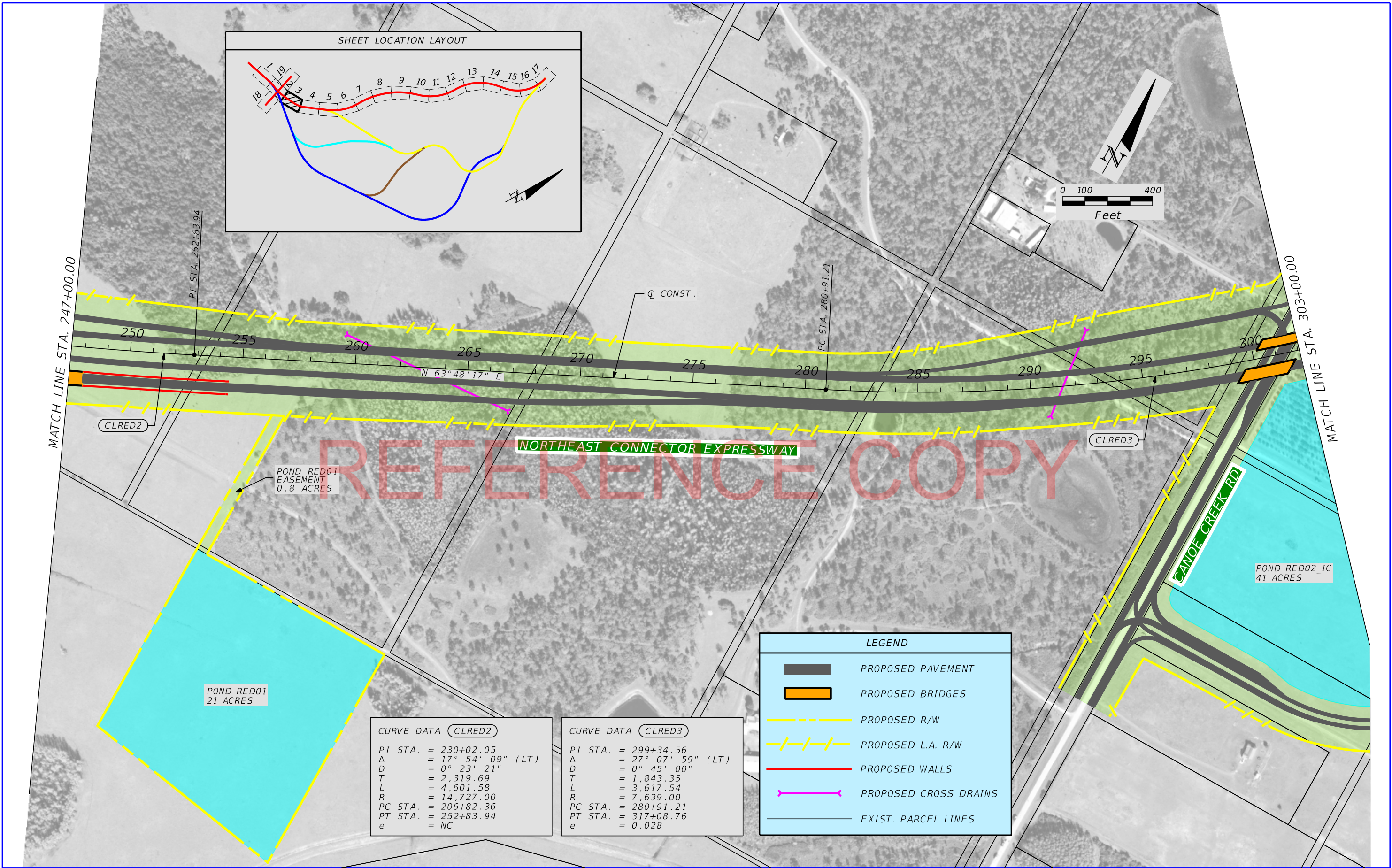
CORRIDOR A  
RED

SHEET  
NO.  
1









MATCH LINE STA. 247+00.00

PT STA. 252+83.94

CLRED2

250 255 260 265 270 275 280 285 290 295 300

N 63° 48' 17" E

Q CONST.

PC STA. 280+91.21

CLRED3

MATCH LINE STA. 303+00.00

POND RED01  
EASEMENT  
0.8 ACRES

POND RED01  
21 ACRES

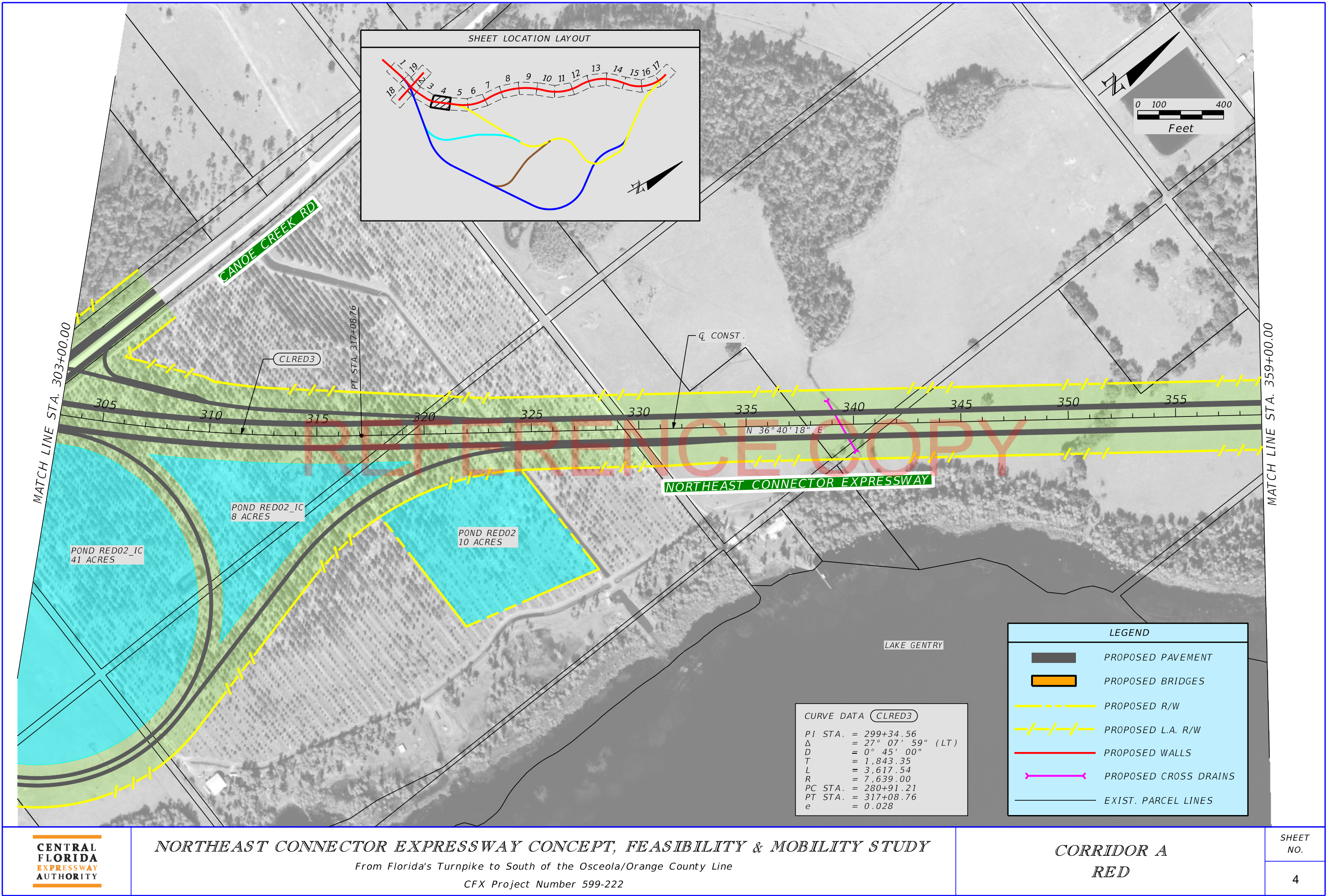
POND RED02\_IC  
41 ACRES

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Δ	= 17° 54' 09" (LT)
D	= 0° 23' 21"
T	= 2,319.69
L	= 4,601.58
R	= 14,727.00
PC STA.	= 206+82.36
PT STA.	= 252+83.94
e	= NC

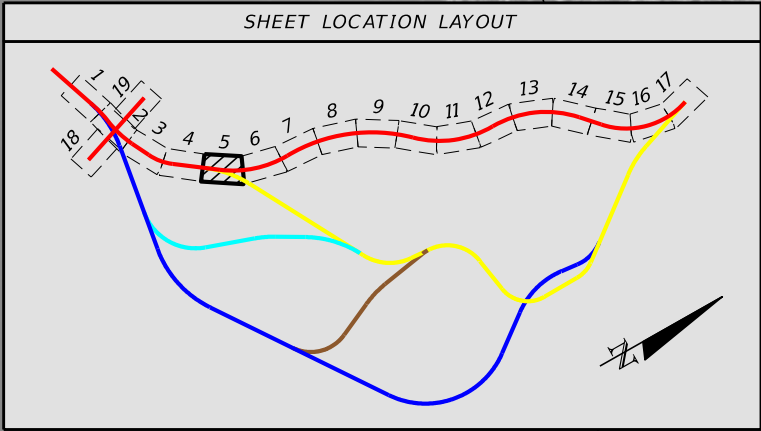
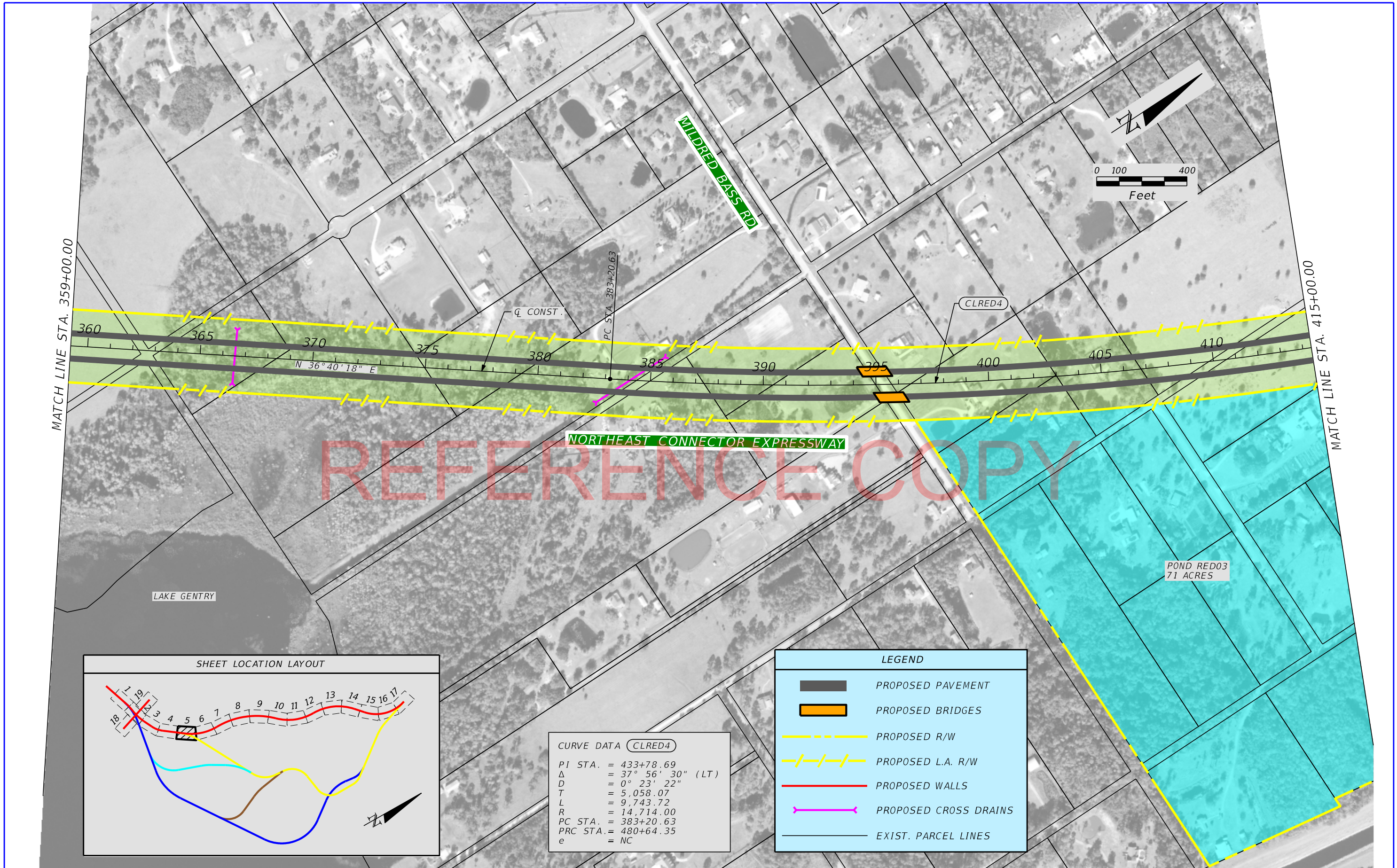
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Δ	= 27° 07' 59" (LT)
D	= 0° 45' 00"
T	= 1,843.35
L	= 3,617.54
R	= 7,639.00
PC STA.	= 280+91.21
PT STA.	= 317+08.76
e	= 0.028

LEGEND	
	PROPOSED PAVEMENT
	PROPOSED BRIDGES
	PROPOSED R/W
	PROPOSED L.A. R/W
	PROPOSED WALLS
	PROPOSED CROSS DRAINS
	EXIST. PARCEL LINES





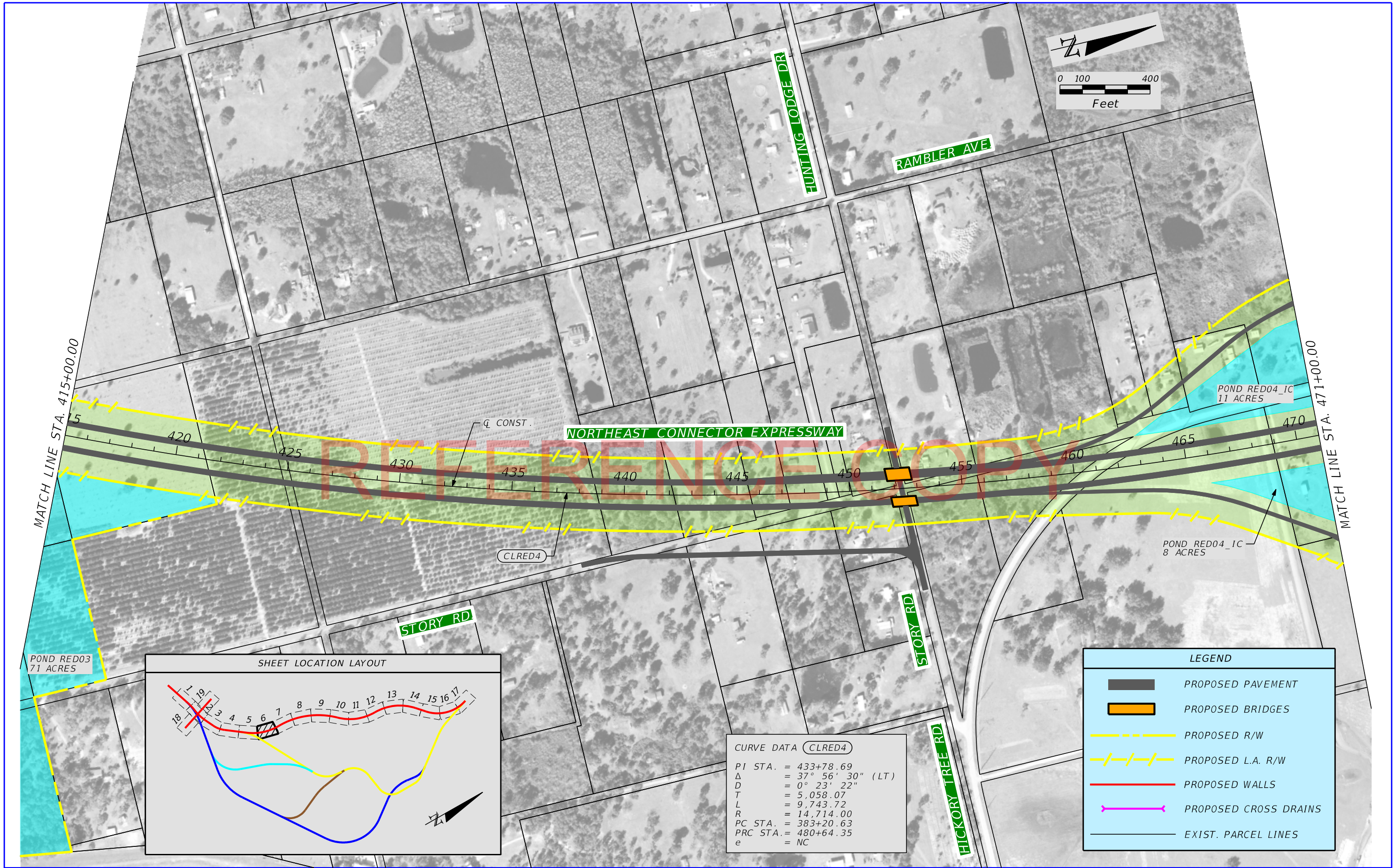




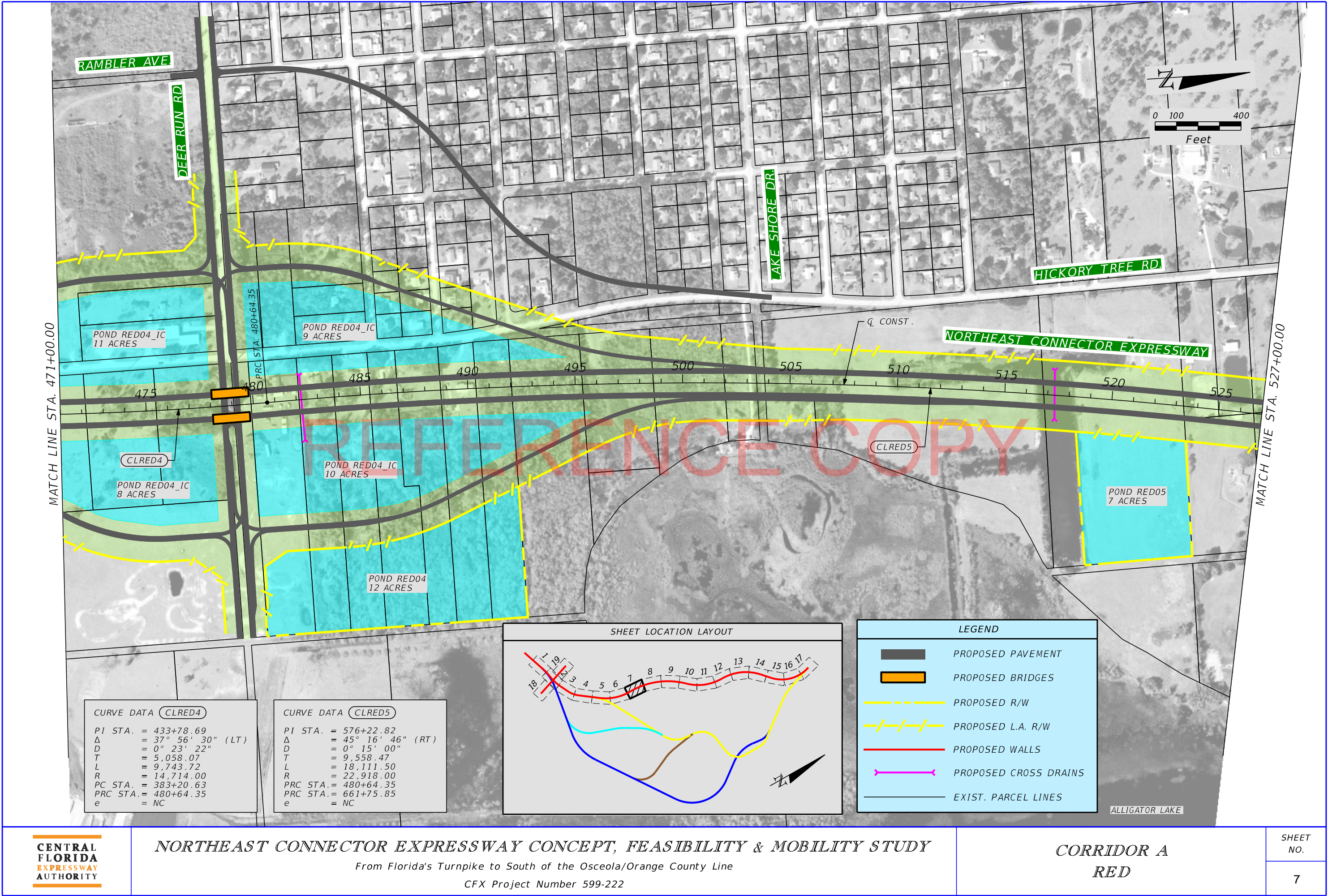
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L	= 9,743.72
R	= 14,714.00
PC STA.	= 383+20.63
PRC STA.	= 480+64.35
e	= NC

LEGEND	
	PROPOSED PAVEMENT
	PROPOSED BRIDGES
	PROPOSED R/W
	PROPOSED L.A. R/W
	PROPOSED WALLS
	PROPOSED CROSS DRAINS
	EXIST. PARCEL LINES

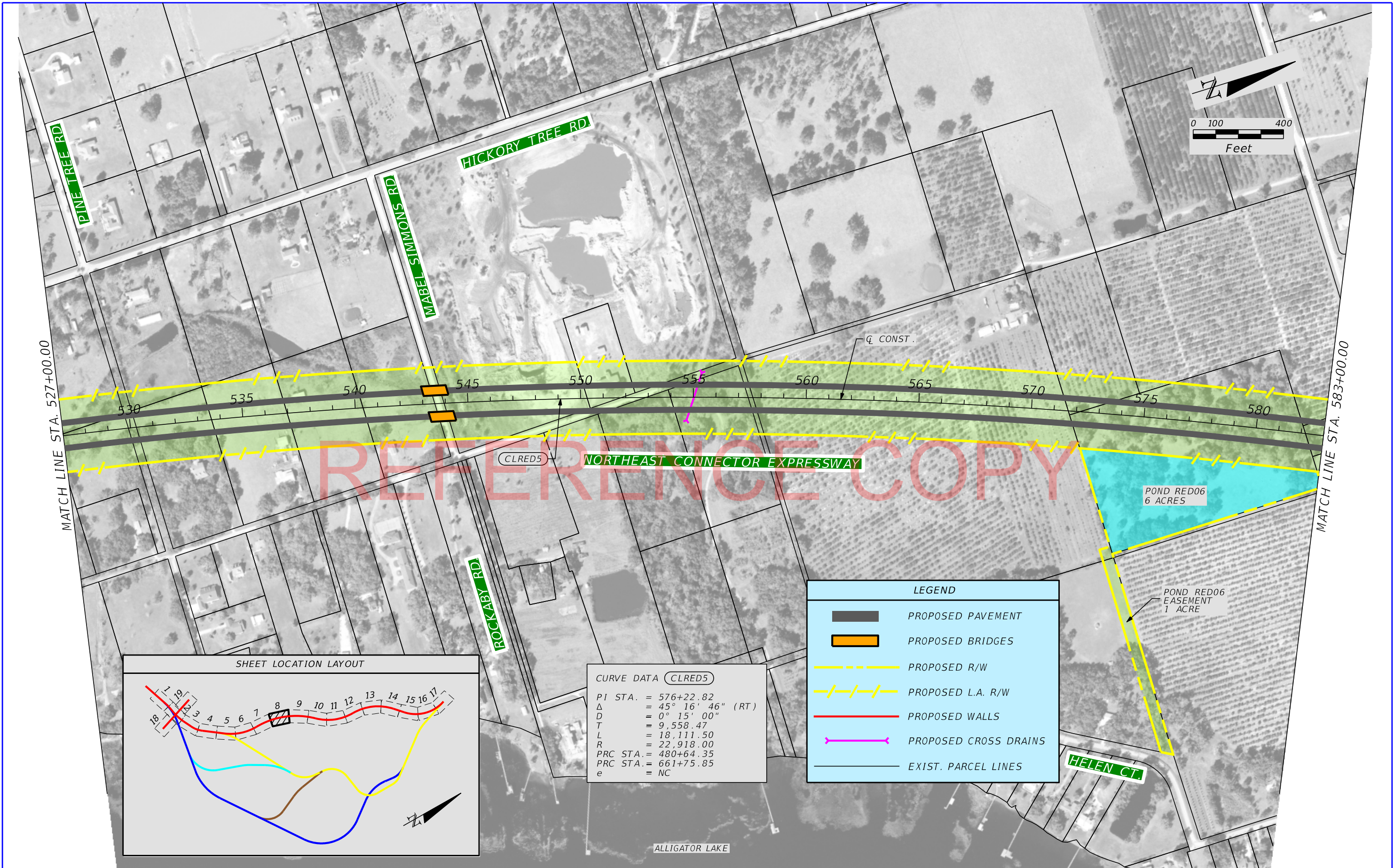




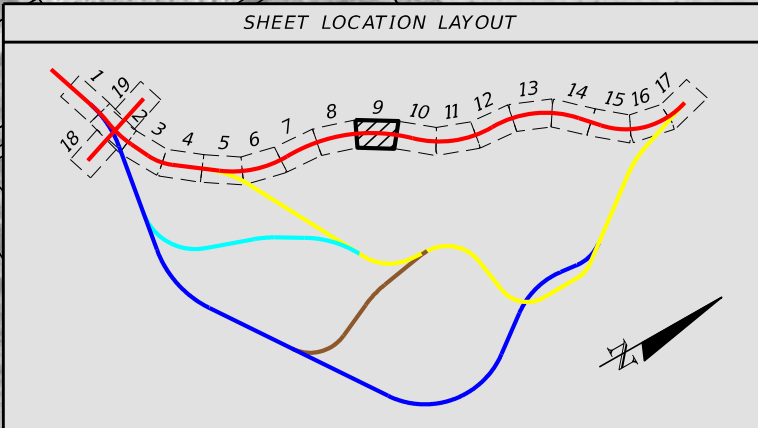
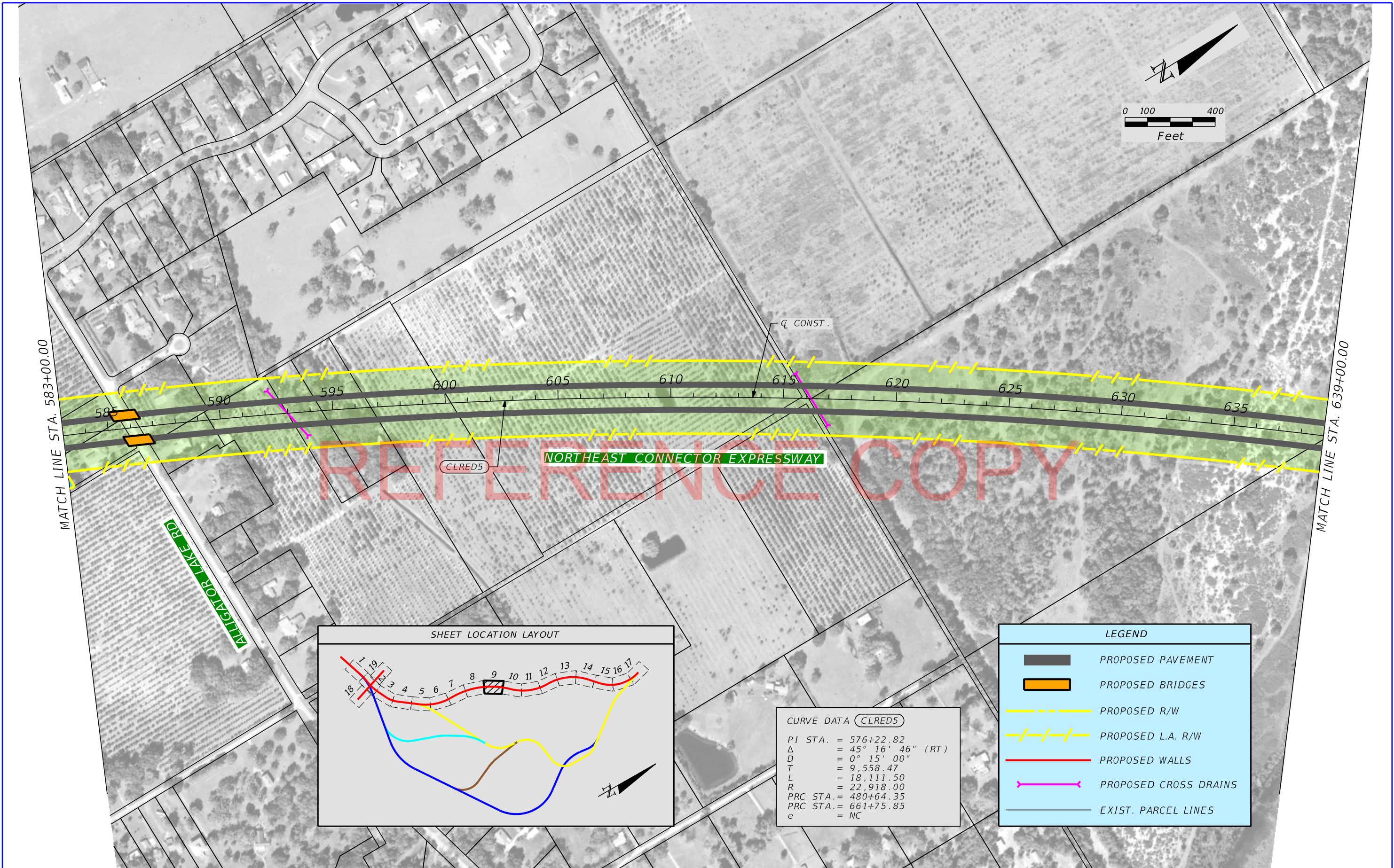








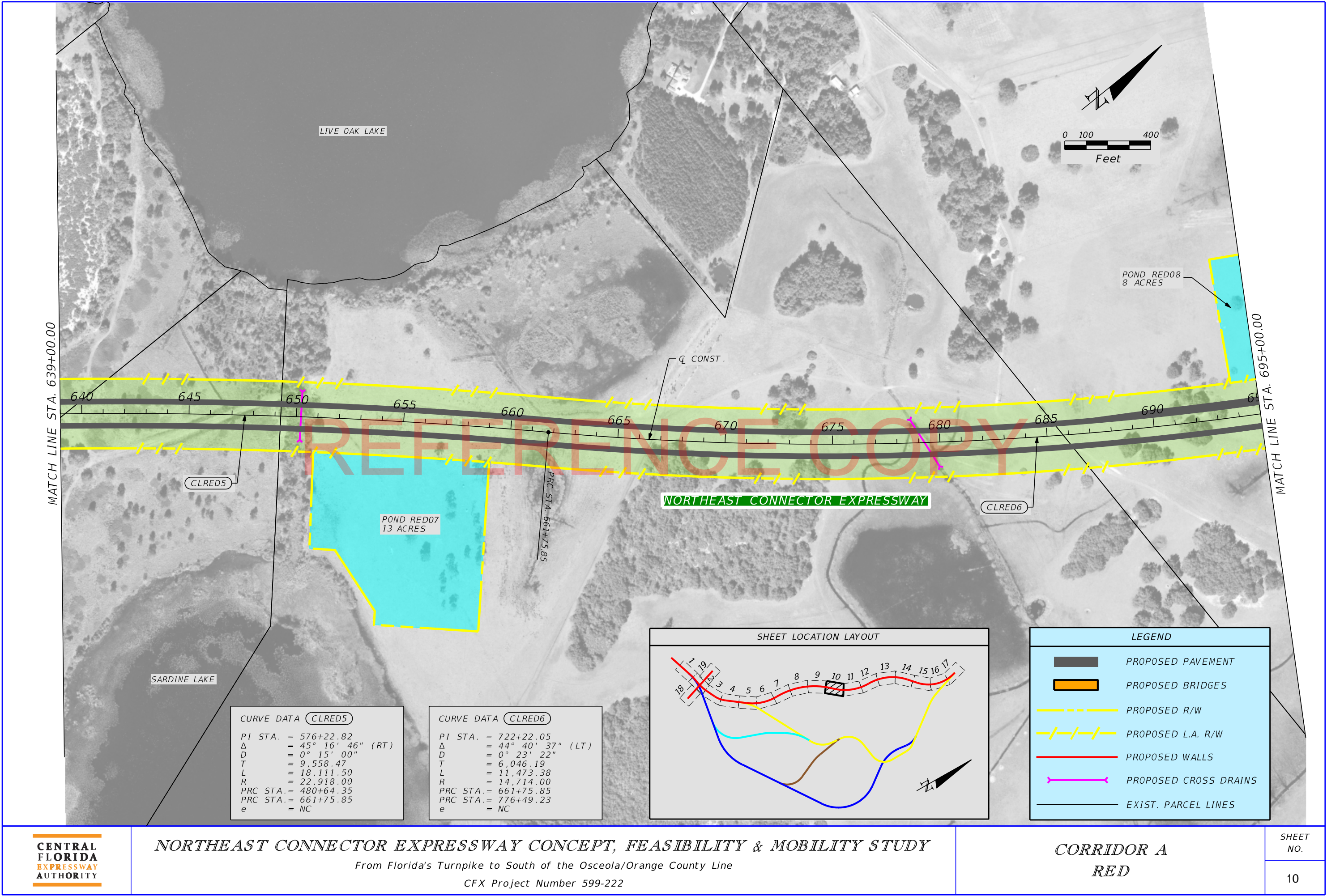




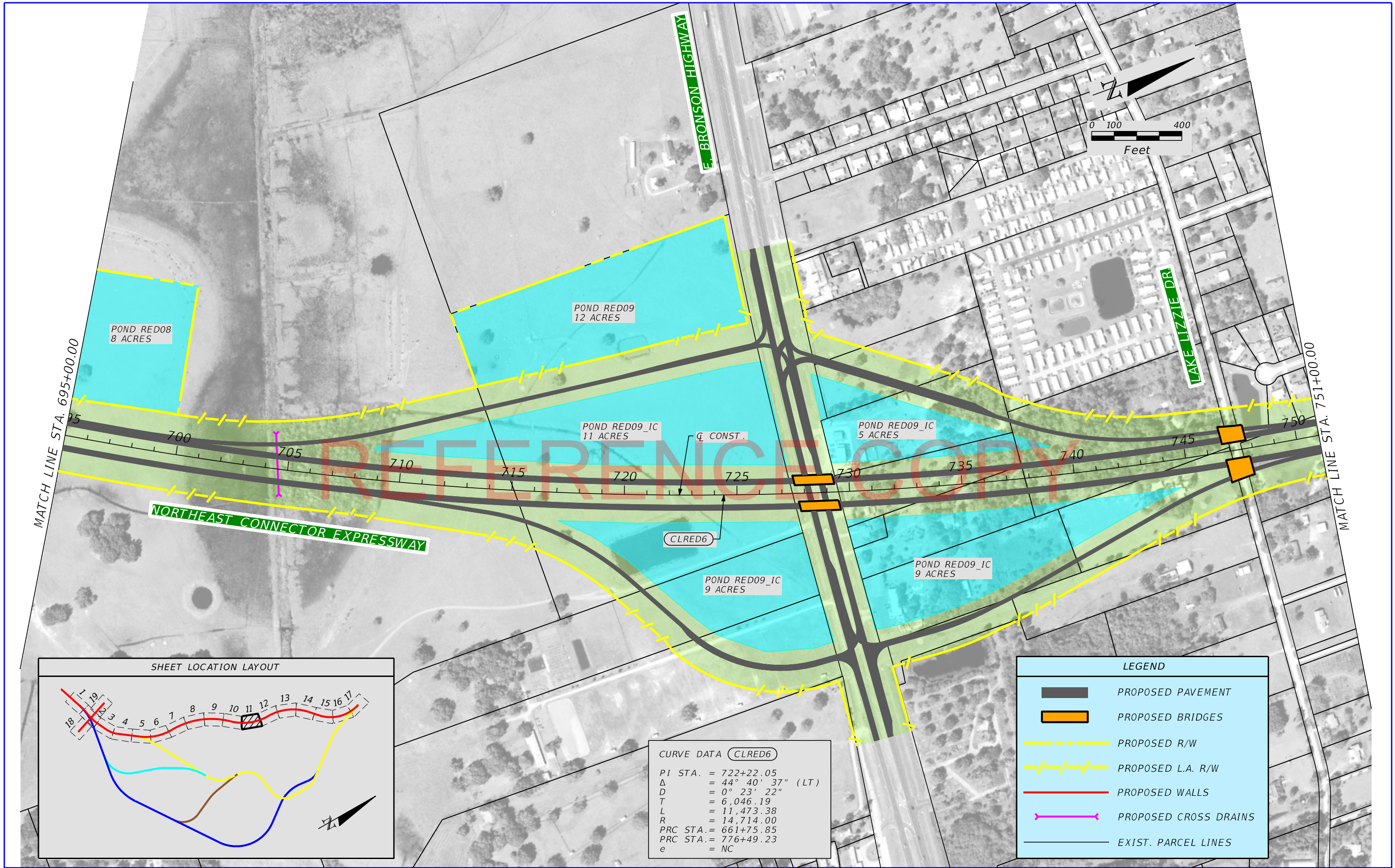
CURVE DATA (CLRED5)	
PI STA.	= 576+22.82
$\Delta$	= 45° 16' 46" (RT)
D	= 0° 15' 00"
T	= 9,558.47
L	= 18,111.50
R	= 22,918.00
PRC STA.	= 480+64.35
PRC STA.	= 661+75.85
e	= NC

LEGEND	
	PROPOSED PAVEMENT
	PROPOSED BRIDGES
	PROPOSED R/W
	PROPOSED L.A. R/W
	PROPOSED WALLS
	PROPOSED CROSS DRAINS
	EXIST. PARCEL LINES

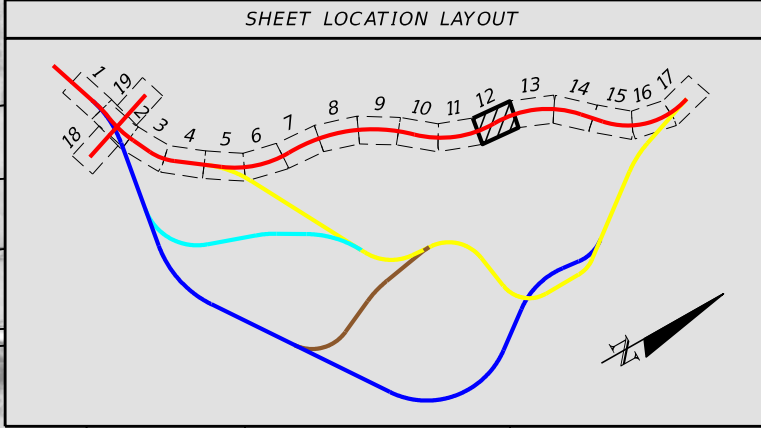
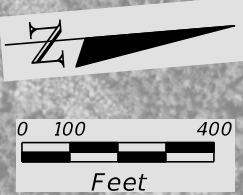
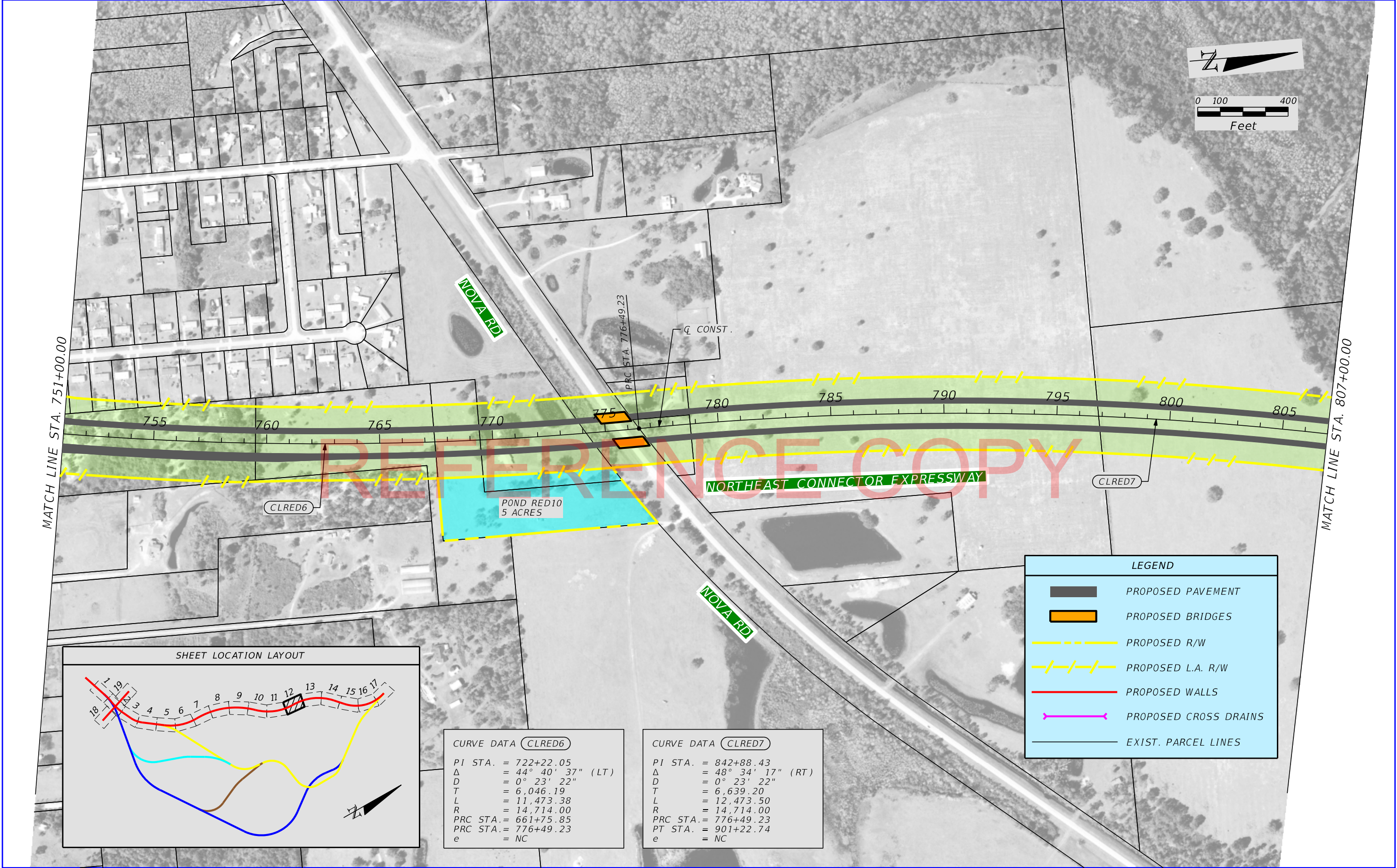










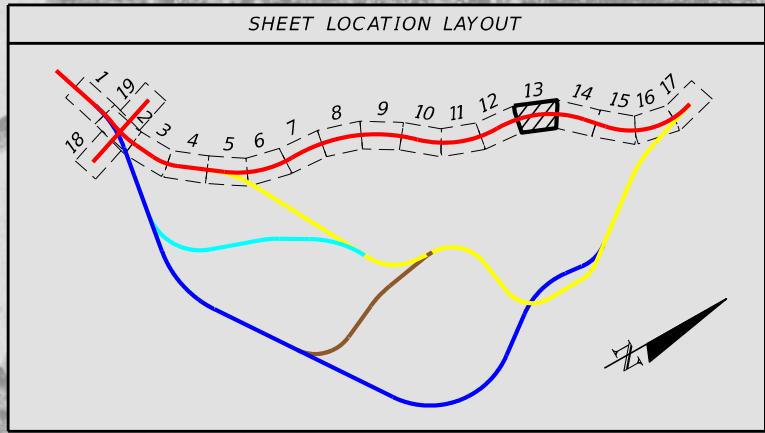
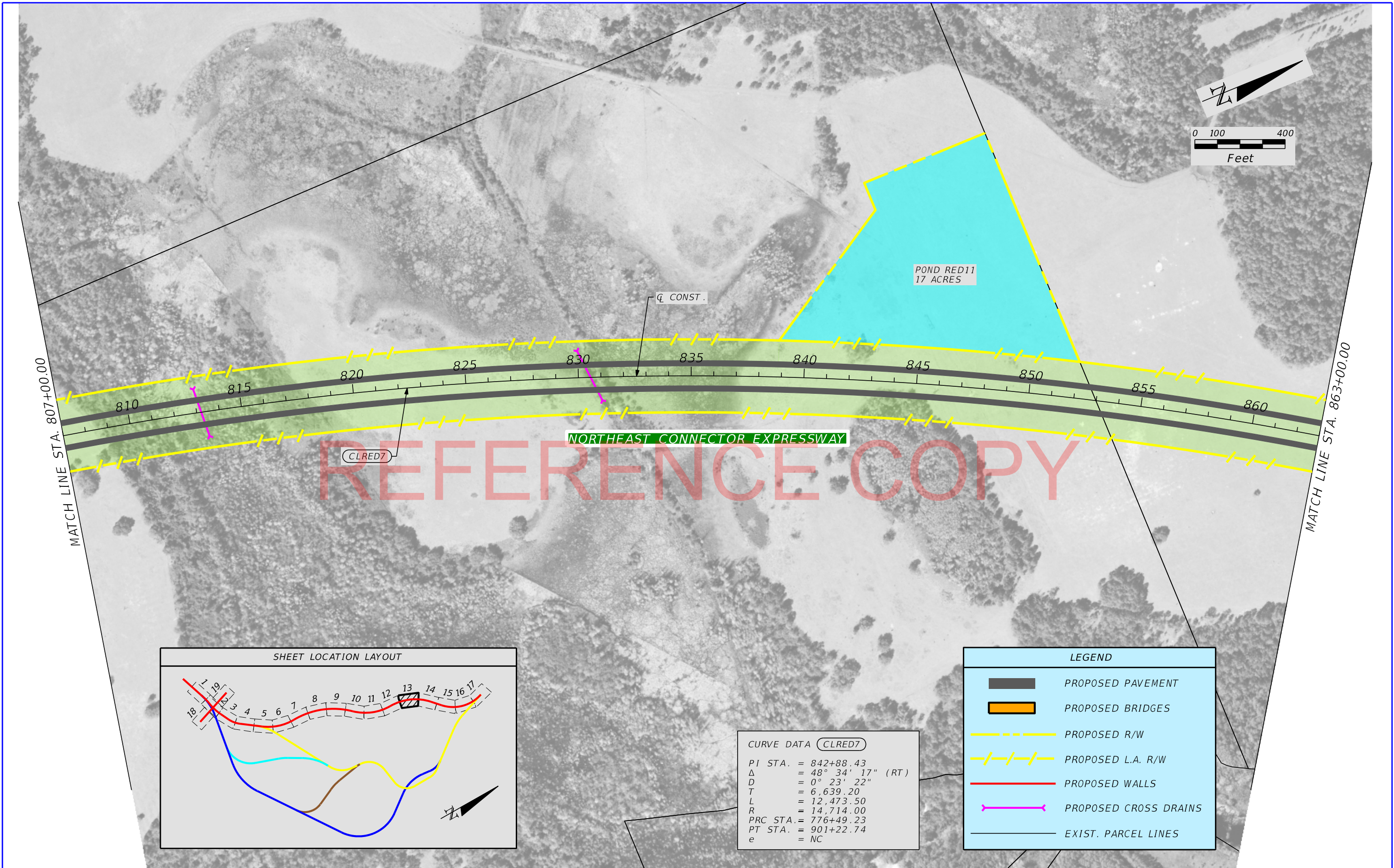


CURVE DATA (CLRED6)	
PI STA.	= 722+22.05
Δ	= 44° 40' 37" (LT)
D	= 0° 23' 22"
T	= 6,046.19
L	= 11,473.38
R	= 14,714.00
PRC STA.	= 661+75.85
PRC STA.	= 776+49.23
e	= NC

CURVE DATA (CLRED7)	
PI STA.	= 842+88.43
Δ	= 48° 34' 17" (RT)
D	= 0° 23' 22"
T	= 6,639.20
L	= 12,473.50
R	= 14,714.00
PRC STA.	= 776+49.23
PT STA.	= 901+22.74
e	= NC

LEGEND	
	PROPOSED PAVEMENT
	PROPOSED BRIDGES
	PROPOSED R/W
	PROPOSED L.A. R/W
	PROPOSED WALLS
	PROPOSED CROSS DRAINS
	EXIST. PARCEL LINES

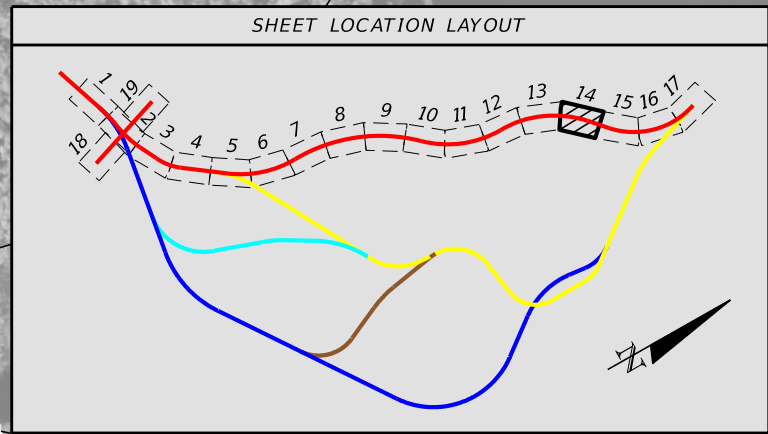
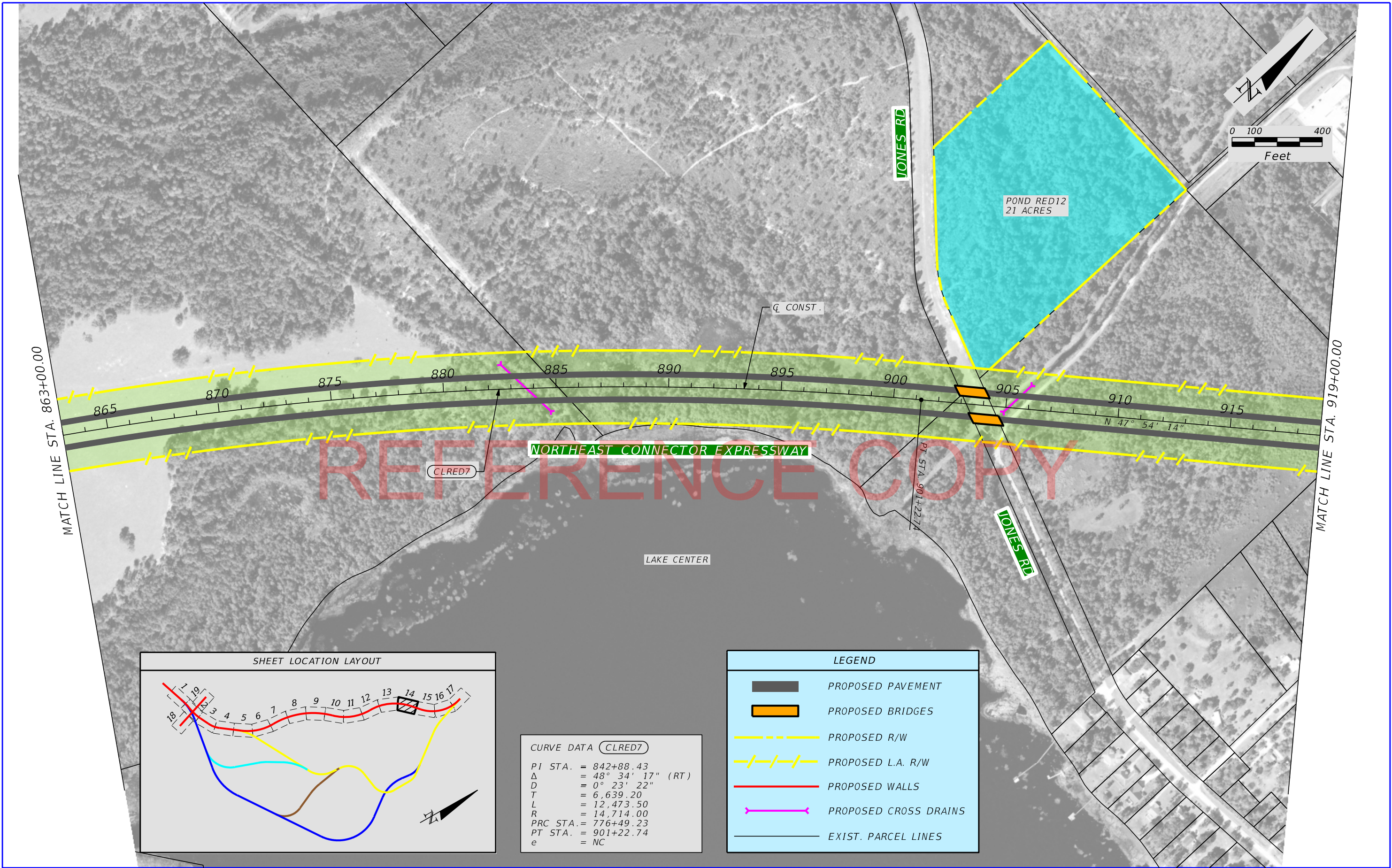




CURVE DATA (CLRED7)	
PI STA.	= 842+88.43
$\Delta$	= 48° 34' 17" (RT)
D	= 0° 23' 22"
T	= 6,639.20
L	= 12,473.50
R	= 14,714.00
PRC STA.	= 776+49.23
PT STA.	= 901+22.74
e	= NC

LEGEND	
	PROPOSED PAVEMENT
	PROPOSED BRIDGES
	PROPOSED R/W
	PROPOSED L.A. R/W
	PROPOSED WALLS
	PROPOSED CROSS DRAINS
	EXIST. PARCEL LINES

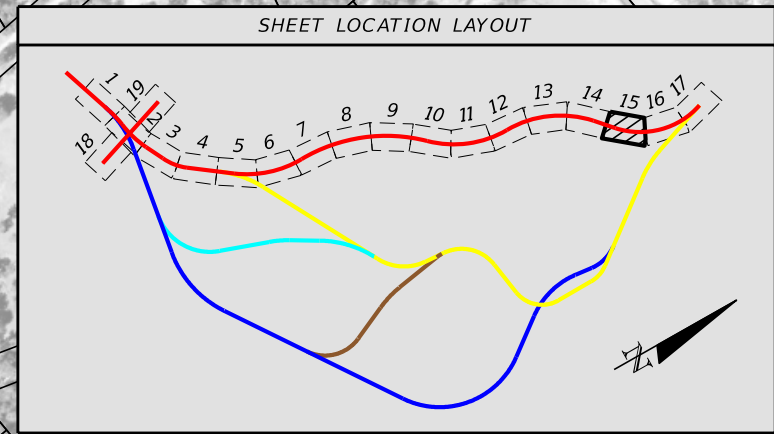
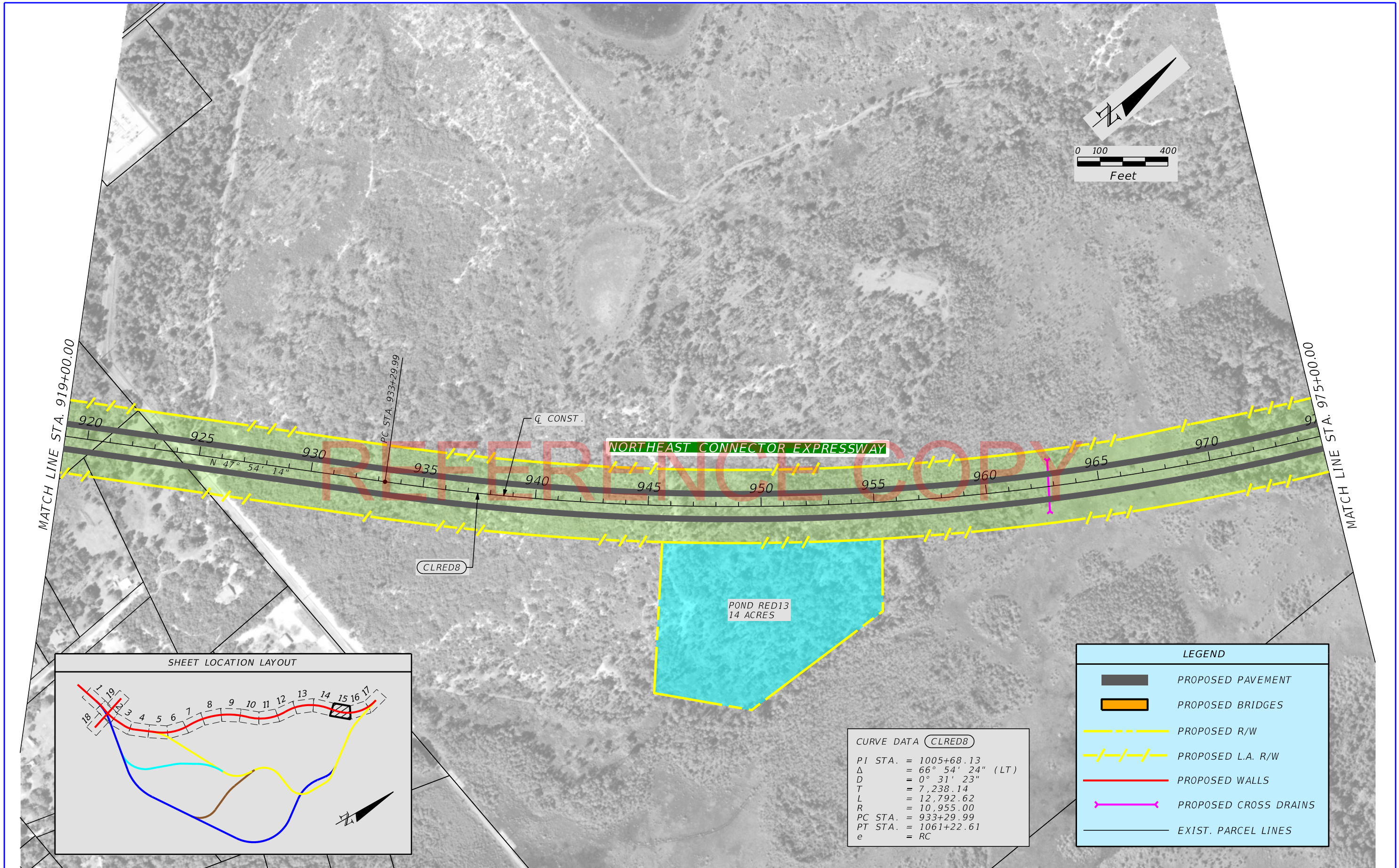




CURVE DATA (CLRED7)	
PI STA.	= 842+88.43
Δ	= 48° 34' 17" (RT)
D	= 0° 23' 22"
T	= 6,639.20
L	= 12,473.50
R	= 14,714.00
PRC STA.	= 776+49.23
PT STA.	= 901+22.74
e	= NC

LEGEND	
	PROPOSED PAVEMENT
	PROPOSED BRIDGES
	PROPOSED R/W
	PROPOSED L.A. R/W
	PROPOSED WALLS
	PROPOSED CROSS DRAINS
	EXIST. PARCEL LINES

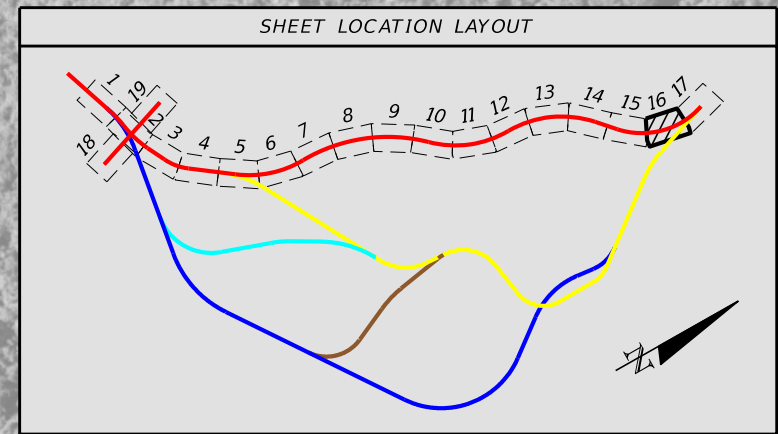
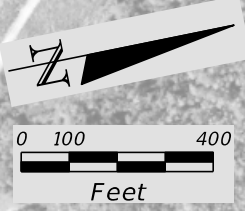
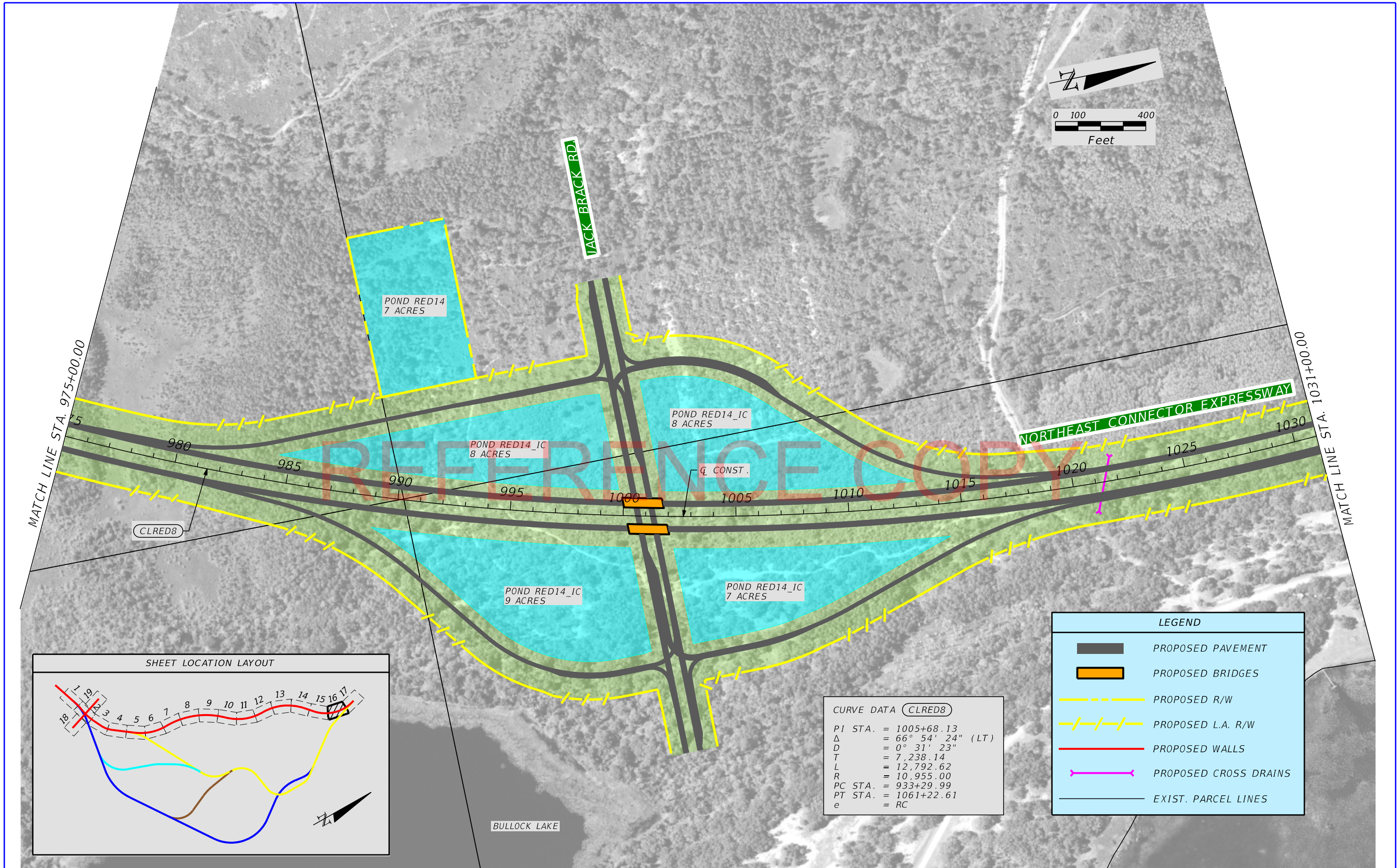




CURVE DATA (CLRED8)	
PI STA.	= 1005+68.13
$\Delta$	= 66° 54' 24" (LT)
D	= 0° 31' 23"
T	= 7,238.14
L	= 12,792.62
R	= 10,955.00
PC STA.	= 933+29.99
PT STA.	= 1061+22.61
e	= RC

LEGEND	
	PROPOSED PAVEMENT
	PROPOSED BRIDGES
	PROPOSED R/W
	PROPOSED L.A. R/W
	PROPOSED WALLS
	PROPOSED CROSS DRAINS
	EXIST. PARCEL LINES





CURVE DATA (CLRED8)	
PI STA.	= 1005+68.13
Δ	= 66° 54' 24" (LT)
D	= 0° 31' 23"
T	= 7,238.14
L	= 12,792.62
R	= 10,955.00
PC STA.	= 933+29.99
PT STA.	= 1061+22.61
e	= RC

LEGEND	
	PROPOSED PAVEMENT
	PROPOSED BRIDGES
	PROPOSED R/W
	PROPOSED L.A. R/W
	PROPOSED WALLS
	PROPOSED CROSS DRAINS
	EXIST. PARCEL LINES

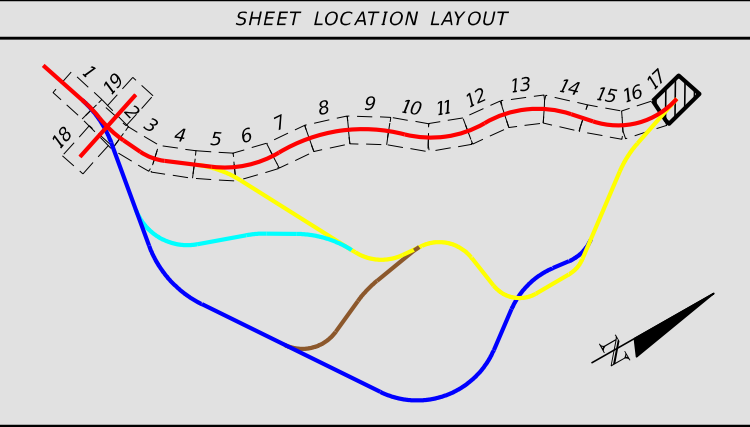
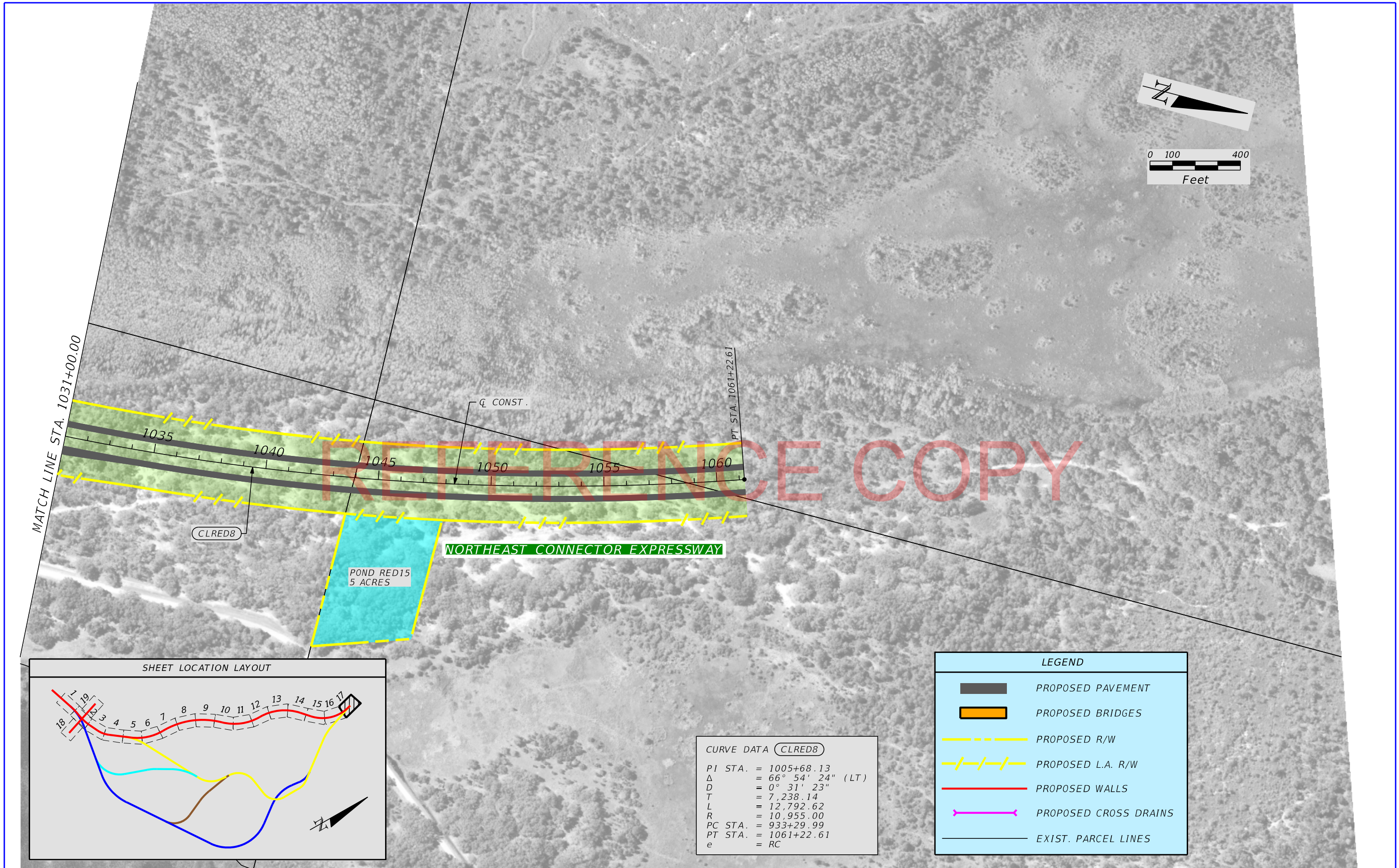


**NORTHEAST CONNECTOR EXPRESSWAY CONCEPT, FEASIBILITY & MOBILITY STUDY**  
From Florida's Turnpike to South of the Osceola/Orange County Line  
CFX Project Number 599-222

**CORRIDOR A  
RED**

SHEET  
NO.  
  
16



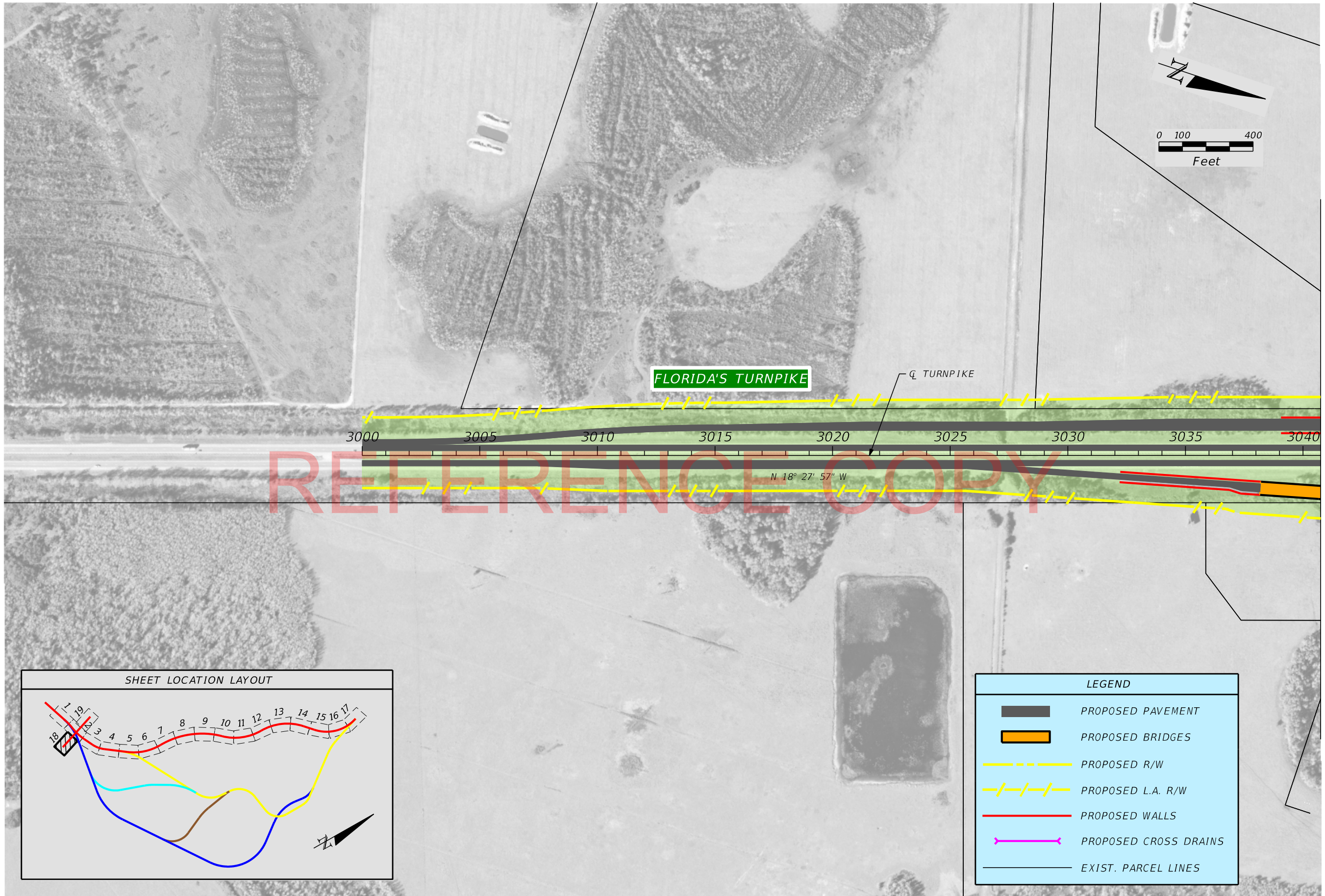


CURVE DATA (CLRED8)

PI STA.	= 1005+68.13
$\Delta$	= 66° 54' 24" (LT)
D	= 0° 31' 23"
T	= 7,238.14
L	= 12,792.62
R	= 10,955.00
PC STA.	= 933+29.99
PT STA.	= 1061+22.61
e	= RC

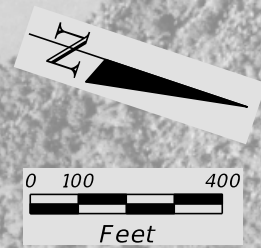
LEGEND	
	PROPOSED PAVEMENT
	PROPOSED BRIDGES
	PROPOSED R/W
	PROPOSED L.A. R/W
	PROPOSED WALLS
	PROPOSED CROSS DRAINS
	EXIST. PARCEL LINES





MATCH LINE STA. 3040+75.00



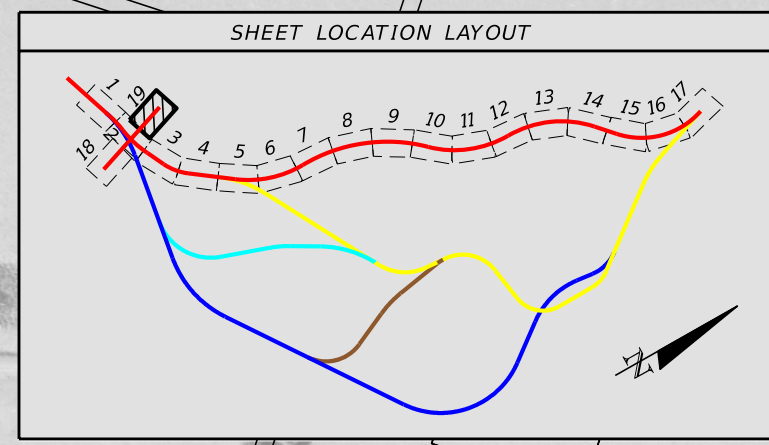


MATCH LINE STA. 3075+00.00

FLORIDA'S TURNPIKE

Q TURNPIKE

N 18° 27' 57" W



LEGEND	
	PROPOSED PAVEMENT
	PROPOSED BRIDGES
	PROPOSED R/W
	PROPOSED L.A. R/W
	PROPOSED WALLS
	PROPOSED CROSS DRAINS
	EXIST. PARCEL LINES



**NORTHEAST CONNECTOR EXPRESSWAY CONCEPT, FEASIBILITY & MOBILITY STUDY**  
From Florida's Turnpike to South of the Osceola/Orange County Line  
CFX Project Number 599-222

**CORRIDOR A**  
**RED**

SHEET NO.  
**19**